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ABSTRACT

Summaries of studies or experiments dealing with some aspect of independent study are compiled in this report. The papers include: (1) "The Future of Self-Directed Study," by Howard E. Gruber; (2) "Freshman Seminars at Harvard," by Eric W. Shaw; (3) "Independent Study in Honors Programs," by Philip I. Mitterling; (4) "Independent Study and the Academic Library," by Patricia B. Knapp; (5) "Independent Study at Knox College," by Rene N. Ballard; (6) "'Search' Behavior in Undergraduates," by Stephen Kaplan; (7) "Independent Study of Professional Education at Cornell," by L.B. Hixon; (8) "Self-Directed Student Groups and College Learning," by Leslie R. Beach; (9) "Student-Led Discussion Groups," by Clarence Leuba; and (10) "Introductory Seminar in American Government," by Victoria Schuck. The findings presented suggest that unless students and faculties are more critical about the nature of the inquiries made in independent study, their accomplishments are likely to be modest or disappointing. They indicate further that this learning experience should involve a total climate of learning. (LBH)

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NEW DIMENSIONS in Higher Education

Number 13

Approach to Independent Study

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Highlights

The reports presented in this publication suggest that *independent study* has become an approach to learning rather than an administrative arrangement to enable individual students to pursue special studies apart from organized courses.

Today, there seems to be a disposition to define independent study as something that embraces various teaching and learning procedures in which the student assumes a major responsibility for his education and shows significant independence in some or all aspects of the learning process, whether apart from or in organized courses. The critical element in independent study is the quality of the inquiry. Many teaching and learning approaches can and should be employed.

Several of these approaches which are discussed in this publication include self-directed study, student-led discussions, freshman seminars, the role of the library in independent study, and independent study in honors programs and in specialized and professional education.

OE–50041

NEW DIMENSIONS
In Higher Education

Number 13

APPROACH TO INDEPENDENT STUDY

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
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FOREWORD

The materials presented in this issue of *New Dimensions in Higher Education* deal with studies selected for their contribution to significant developments in higher education. Since *independent study* is such a development, but one which is not always examined critically or in an adequate context, the authors of the reports in this volume were asked to prepare summaries of their studies or experiments dealing with some aspect of *independent study* in the hope that such a compilation would provide the reader with a better understanding of the problems met in such study.

The findings presented here suggest that unless students and faculties are more critical about the nature of the inquiries made in *independent study*, their accomplishments are likely to be modest, even disappointing. They indicate further that this learning experience should involve a total climate of learning.

Since most institutions are convinced of the need and desirability of providing better opportunities for *independent study*, these reports should prove helpful.

Harold A. Haswell
Director, Educational Research Information Center

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THE FUTURE OF SELF-DIRECTED STUDY

Howard E. Gruber*

IN THE HISTORY of science, negative experimental results have sometimes had a profound influence on subsequent thought. Galileo found that the weight of a body had no effect on its earthward velocity; Weissman found that chopping off the tails of rats had no effect on tail-length in subsequent generations. Although these investigators reported "no significant differences," their findings changed the course of science because the then prevalent theories predicted a difference. Unhappily, this particular bond between experiment and theory is not to be found in contemporary investigations of self-directed study.

This report discusses research on self-directed study, with special emphasis on two major findings. First, when the criterion for evaluating self-directed study is the student's learning of subject matter, the results are indeterminate, producing no very powerful argument for or against self-directed study and no argument for or against conventional methods such as lecture courses meeting two or three times per week. Second, when the criterion for evaluation of self-directed study is a group of attitudinal changes such as increased curiosity, critical thinking, and attitude toward independent intellectual work, brief experiences with self-directed study do typically produce small, favorable changes. From these results it may be argued that a systematic educational program can be worked out, viewing the 4-year college experience as a unified opportunity for growth toward intellectual self-reliance. A sequence of attitudinal and cognitive changes is proposed, and some attention is given to the changed role of the college teacher in such a program.

Broadly speaking, research on self-directed study is concerned with all methods of higher education designed to increase the student's responsibility for his own education. But among such methods, this report is not primarily concerned with *independent study*, a term usually reserved for those teaching methods involving individual projects in which student and teacher are in a one-

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one relationship. As described by Bonthius and others (1957), independent study is very rewarding, but it makes prohibitive demands on faculty time.† We are concerned, rather, with those ways of increasing the student's responsibility for his own education which preserve the essence of the course system, the one-many relation between teacher and students. For want of a better term, we refer to such methods as *self-directed study*. Although these methods vary, investigations of self-directed study have one essential point in common: while preserving the course system, the proportion of time devoted to formal classroom meetings is reduced.

Research workers in the field and in the laboratory recognize that educational experiments in self-directed study fail to yield dramatic or even consistent results. In the face of negative results, (i.e. "no harm done"), many educators cling to their belief in the efficacy of lectures or other formal classroom meetings; likewise, many psychologists optimistically cling to the hope that a convincing demonstration of the efficacy of self-directed study is "just around the corner."

During a protracted investigation of student-centered teaching methods which included self-directed study, McKeachie (1960) was forced to conclude that such methods are "no panacea" for the problems of higher education. Further, his important review of research on instructional methods stresses the predominant theme of "no significant differences" between educational methods (1962).

Similarly, after a 3-year investigation of self-directed study in many different university courses, Gruber and Weitman were forced to the rather weak conclusion that as far as learning of conventional course content is concerned, "a reduction in attendance at formal classes to one-third the usual number resulted in either small losses or small gains, the gains being somewhat more common than the losses" (1963).

However, these failures to find striking superiority of self-directed study should not be interpreted as representing empirical support for the unfounded American decision to subject college students to some 2,000 lectures in four years. If anything, field studies conducted at Antioch College, the Universities of Colorado and Michigan, and elsewhere around the country, do justify reduction in the number of formal class meetings. Such reduction produces little or no loss in subject matter learned, and almost certainly does produce some improvement in attitude toward in-

† See references at the end of this chapter.

dependent intellectual work, as well as in curiosity and critical thinking.

The major findings emerging from such field studies may be summarized as follows: a small change in the fabric of a student's life produces only a small change in his intellectual development. However, it should be stressed that all of these field studies have been extremely restricted, even timid, in character. On the surface, reducing the number of lectures attended in a course from three per week to one per week may seem a drastic change. [We even eliminated all lectures in one experimental group with rather favorable results.] Actually, when the experiment is restricted to a single course in a single semester, the change can be described as a temporary reduction from 15 to 13 lectures per week—not at all a fundamental change in the student's intellectual way of life.

These field studies are limited in two other ways. First, the student's work is typically still fragmented into five or six courses per semester. Second, having had years of training in certain teacher-directed patterns of education, the student is perfectly capable of privately preserving these patterns, at least in large part, unless far more drastic changes in his situation are introduced, or, alternatively, unless training methods are developed to deliberately break up these patterns. Given a textbook, a course outline, and an impending final examination, there is nothing to prevent the student from recreating and maintaining the passive, cramped, teacher-directed study pattern to which he has long been accustomed. Indeed, since he has four or five nonexperimental courses to cope with at the same time, the student in the experimental group often sees his only salvation in resisting whatever temptation to strike out on his own the self-directed study course may offer him. Much of our interview material suggests that this is actually the case (Gruber and Weitman, 1962), and Campbell's more restricted laboratory experiments (1963) suggest a similar conclusion. For if the American college student has learned little else, he has learned the strategy of passive acquiescence in uncritically assimilating the material the teacher thinks is important. This is a strategy that *works*: it has gotten him where he is, and it has gotten his older brother a little further on the road to the sort of success they are both striving for.

Taking note of the slightly positive but relatively unimpressive results of field investigations of self-directed study, Campbell (1963) attempted to maximize the effect in a more carefully controlled study, resembling a laboratory experiment. Emphasis was placed on equating the materials used by different groups, using each student in both self-directed and teacher-directed methods,

and conducting both methods of instruction under individualized learning conditions to avoid the confounding of certain variables. In spite of all these precautions, Campbell arrived at a conclusion strikingly similar to the closing paragraphs of most field studies:

> Finally, it is worth noting that in no experiment did self-direction have an adverse effect on learning. This is economically quite important, for if there is nothing to be lost in learning efficiency, self-direction could save a good deal of time and money. . . . Learning efficiency too might show greater gains over a period of years than we have demonstrated in our brief experiments, at least for students who are motivated to learn . . . the cumulative effect on his problem-solving, decision-making, and creativeness might be impressive. (Campbell, 1963, p. 16.)

Although the author has no quarrel with these remarks, which he might almost have written himself, he finds it thought-provoking to notice that yet another investigation of self-directed study has ended in slightly favorable results which are suggestive but not convincing. Before educational policy-makers are willing to support radical innovations, they rightly require evidence that the proposed changes are genuinely worth the trouble that all changes cause—not merely assurances that the changes do no harm or unsubstantiated hopes that if continued long enough they *might* do considerable good.

Most research on educational method has been restricted to the piecemeal comparison of methods in a single, one-semester course, or in a fragment of such a course. Where the criterion variable has been assimilation of subject matter, a wide variety of methods has proved roughly interchangeable—methods as disparate as many lectures, a few lectures, instructor-led discussion, instructorless discussion, individual study with little or no guidance as to sequence or timing of material, and tightly programed instruction. Slightly "positive" results (i.e., favoring one method) in one study are balanced by slightly "positive" results (favoring another method) in another study. In short, success in meeting the criterion of coverage of course content provides no firm basis for choice among teaching methods.

Perhaps the reason for this negative result is really very simple, and all we need to do is to abandon our cherished belief that different educational methods have different effects. But it is also reasonable to consider the possibility that these experiments have left the essential features of higher education intact, for in almost all these studies the following variables have not been touched: (1) the student's academic work is divided into five or six courses per semester; (2) the teacher plans the course without consulting

the student; (3) the student is given no new orientation in the educational aim of becoming educationally independent; (4) the student is given no specific instruction in active modes of thought which might transform his behavior while he is studying; (5) the immediate aim on which all students are necessarily focused is successful performance on a final examination and a satisfactory grade in the course; and (6) the person evaluating the student's performance is the teacher. Operating within situations that are alike in these essentials, the student studies in approximately the same way, whether the material is presented in the form of a lecture, conventional textbook, list of readings, or programed textbook—he decides what the teachers want him to know and he tries to learn it with a minimum of distraction. Conclusion: "promising results in the expected direction, but no significant difference."

When we turn to effects of self-directed study other than the learning of course material, the so-called "collateral learning" of critical and independent intellectual attitudes, the results are somewhat more hopeful. Again, the changes may be small, not actually transforming the student's way of thought, but they do seem to be consistently in a favorable direction. Perhaps the most uniform finding of research in this area is that students initially *dislike* greater responsibility but come to accept it in the course of a semester, and that their brief experience with self-directed study does produce a more favorable attitude toward independent intellectual work. This result is stressed by Gruber and Weitmen (1962), and similar findings are summarized by McKeachie (1962). Of course, there is little reason to believe that a single brief experience with self-directed study in an educational atmosphere fundamentally hostile to intellectual independence (cf. Gruber and Weitman, 1962) will produce attitudinal changes of great longevity. A fuller discussion of the relation of various educational methods to the student's "image of man" and to his image of himself has been presented elsewhere (Gruber, 1963).

These two major findings can be summarized as follows: Exposure to a single self-directed study course produces little or no effect on the learning of course content, but it does fairly consistently produce a small improvement in attitudes toward independent intellectual work.

Let us now consider a hypothesis stemming from the *joint* implication of these findings. Attitudinal changes develop rather slowly; moreover, they are a necessary *prerequisite* to stable changes in intellectual work habits. Otherwise the student will relapse into the pattern of passive acquiescence whenever pressures

mount, or whenever such patterns produce workable solutions. Furthermore, the student may need specific training to develop new patterns of active intellectual work.

What would a thoroughgoing program look like, self-contained within the college years, but stressing the protracted nature of development toward self-reliance?

The first phase in such a program would be to develop techniques for reorienting the student as soon as he arrives at college, so that he abandons any expectation that he can succeed in academic work merely by frenzied efforts to assimilate everything he is expected to know. We may not know how to do this in a way that would really reach the incoming student, but the results mentioned above suggest that we might learn to produce favorable changes in these attitudes in one or two semesters.

The second phase, overlapping the first, and lasting about a year, would be a deliberate attempt to inculcate new patterns of intellectual work. One useful guide can be found in Torrance's and Harmon's work (1961), in which they experimentally induced assimilative, critical, and creative learning sets in different groups of students. Campbell's recent study (1963) also provides some interesting suggestions on specific means of giving students brief practice in effective methods of self-directed study. The design of Campbell's study provides clearcut evidence for the hypothesis that changes in attitudes and work habits must precede self-directed study if the latter is to produce improved learning of substantive material. Campbell's findings led him to conclude that "the first obstacle to be removed in making self-direction successful is the students' strong habit of passive acquiescence."

Recently, my students and I have encountered a striking instance of highly educated individuals' spontaneous tendency to utilize passive learning methods in circumstances where very simple instructions can eliminate this tendency and thereby produce dramatic improvement of performance in a simple memory task. We have been elaborating the work of Wallace, Turner, and Perkins (1957) on paired-associate learning with brief instruction in the use of an active, highly flexible mnemonic procedure. In one such study, mature college graduates, all with responsible positions in educational systems, were exposed to paired-associates for 8 seconds per pair. In the control group, given no special instructions, no subject spontaneously employed a successful mnemonic procedure: all behaved in a relatively passive, rote fashion. In the experimental group, given only a few minutes of special instruction, performance was better than twice as good. The point at issue is not only the value of active cognitive processes but the

success of years of education in *suppressing* active intellectual work on the part of the learner.

Self-directed study must mean more than a simple alteration in the formal structure of higher education, such as can be accomplished by reducing the number of formal contact hours or the number of courses. If the student is not led to internalize new patterns of active thought, changes in the macro-structure of education may leave the all-important micro-structure intact. Research on students' thought-processes in the classroom, however, suggest that the obvious formal changes do facilitate new and more active ways of thinking (Bloom, 1953; Gruber and Weitman, 1962). The next step remains to be taken: to develop methods of evoking more active thinking *outside* the classroom.

The third phase of such a program would be to change the actual conduct of higher education in order to provide the student with convincing evidence that intellectual habits of passive acquiescence are bound to fail. The systematic introduction of instructional techniques placing greater and greater responsibility on the student, in such a way that intellectual self-reliance becomes a *powerful tradition*, is the most powerful force at our disposal.

But to accomplish this aim it is necessary to persuade the faculty that their students can benefit from such approaches. A prevailing faculty mythology insists, in effect, that students at the bottom of any given segment of the educational ladder are less self-reliant than students at the top. Thus, high-school seniors are often given notably more mature and independent forms of intellectual work than college freshmen, and the same pattern repeats itself in the transition from the senior year in college to the first year in graduate school.

Another similar feature of the prevailing mythology is the widespread faculty belief that only intellectually superior students can profit from self-directed study. Recent research lends little support to this hypothesis (Gruber and Weitman, 1962; McKeachie, 1962).

In one sense, persuading the college faculty of the value of self-directed study should not be too difficult. Frequently, a single experience in an experimental course has a marked positive effect on the professor's views (Gruber and Weitman, 1962). With a group of high school teachers as subjects, Gruber (1961) has also demonstrated that a brief training seminar can produce measurable shifts away from dogmatic teaching and toward problem-oriented teaching.

But in another sense, changing the prevailing style of instruction can be expected to be extremely difficult for a number

of reasons. First, the will to effect such changes deliberately is tempered by a due regard for democratic process and a justified hesitance to interfere with the work of other individuals. Second, the legitimate desire to prepare college students for graduate school inhibits change. The educational researcher may assure his colleagues that moves toward self-directed study will do no harm, but the responsible professor wants stronger assurance than that before he initiates fundamental changes. Third, the prevailing course system makes it difficult for the professor to give the student an opportunity for self-directed study while at the same time preserving the professor's opportunity to speak his own piece, to make his own ideas felt in the student's development. A change from the pattern of five three-credit courses per semester to three five-credit courses (or even four four-credit courses) would provide a much greater measure of flexibility in combining the professor's desire to "profess" with the student's need to develop independently.

Regardless of the specific methods adopted, it is clear that no important change in the conduct of higher education can be accomplished without wide and deep faculty support. The faculty must be convinced of the feasibility and desirability of a coherent program for developing their students' intellectual self-reliance. They must also be given an opportunity to discuss and indeed to refashion their own role in the educative process. If, for example, the student were attending three formal class meetings per week, each lasting 2 hours, instead of 15 one-hour classes, the teacher's role would be profoundly changed. The nature of this change has yet to be spelled out.

A program such as the one outlined above has two further difficulties that merit discussion. First, there is little firm evidence that it would actually produce clearcut effects. If experiences at institutions such as Goddard College were more widely known, many educators would probably be convinced as to the feasibility (i.e., "no harm done") of many innovations. But this kind of feasibility argument falls far short of the positive demonstration necessary to convince educational policy-makers to inaugurate controversial changes. Such positive demonstrations can only be provided by a new kind of multi-institutional research program combining the precision of experimental control with the scope of field investigations. Although a full discussion of this approach is not presented here, I believe that such an approach is feasible and desirable, and that it would produce new insights into the process of higher education.

A second difficulty in any full-scale program for developing in-

tellectual self-reliance stems from the long-range developmental character of this aspect of personal growth. Failure to examine these developmental implications might lead us to a peculiar impasse in which we manage to invent a program for maximizing intellectual independence and then discover that, after all, this is a highly objectionable state of affairs.

It is plain to see that maximal independence is only an *intermediate* goal. If the student were to remain in such a solipsistic state indefinitely, we might begin to complain that he was an asocial recluse. We do not want to substitute the hermit's cave for the anthill. Our aim is not independence for its own sake. For this reason, in improving our methods of developing intellectual self-reliance, we must give deeper thought to the kind of human relationships our educational methods foster. Increasing self-reliance need not produce increasing alienation. Instead, it could produce a cyclical shift in the student's social role. For example, the more advanced student could exercise and deepen his own knowledge by imparting it to others. This oscillation between the role of student and the role of teacher may, in the long run, become the essential characteristic of self-directed study.

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FRESHMAN SEMINARS AT HARVARD

Eric W. Shaw*

THE FOLLOWING PAPER has been adapted from the 1963 report[1] of the Harvard University Faculty Committee appointed to evaluate the seminar program's first four years. The report, which emerged from a long statistical study, led to the establishment of the program on a permanent basis. The evaluating committee interviewed, personally or by questionnaire, almost every student who participated in a seminar and a similar number, of equivalent potential, who did not participate. Members of the committee also talked with most of the faculty members who served as seminar leaders.

The Objectives of the Program

The Harvard College Freshman Seminar Program, introduced in 1959, was conceived with several purposes in mind:

1. To sustain the focused commitments which some students appear to bring with them,
2. To provide immediately, for students of all kinds, vivid and challenging introduction to some significant area of study,
3. To give the student a sense of engagement in the life of the university, and
4. To provide students in the freshman year better opportunity for intelligent decisions in determining their departmental concentration.

The Selection of Participants

During the years 1959–63, more than eleven hundred Harvard and Radcliffe freshmen, or about one-fifth of the combined freshmen classes, participated in 130 seminars. The original faculty

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[1] Bryon Stookey, Jr., *The Freshman Seminar Program: A Report to the Faculty of Arts and Science*, February 1963. Mr. Stookey was Director of the Harvard Freshman Seminar Program from 1959 to 1963.

legislation provided that a student might devote as much as half of his four-course program to the work of a freshman seminar. However, after the first year this provision was reduced to one-course credit, so that more students could participate in seminars. A pamphlet describing the seminars for the coming year was sent each summer to incoming freshmen, and all who were interested were invited to apply. Applications were collected by the program office and forwarded to the seminar leader in September along with background information from admissions records. Upon arrival, almost every applicant had an interview with the seminar leader. If too many had applied, the seminar leader used whatever criteria seemed appropriate in selecting the participants.

The Method and Substance of the Seminars

With regard to method it is possible to distinguish, in general, three types of seminars. One type was designed to provide "committed" freshmen early experience of advanced and adult work within a specialized field. An example of this type was Donald Menzel's seminar on the growth and behavior of sunspots. A second type examined the nature of a broad area of inquiry by treating in depth a sharply focused but representative subject. The late Clyde Kluckhohn's seminar on the Navajo Indian was an enterprise of this kind. Finally, there have been some seminars that set out to demonstrate the nature of a wide area by considering broad questions from the start. Such were the seminars directed by David Riesman, which ranged through literature, philosophy, anthropology, and psychology to study the relation of the individual to society.

The typical seminar has engaged 8 to 10 freshmen in a common inquiry, drawing increasingly on individual, independent work as the inquiry's context and shape gained clarity. Some have proceeded from broad initial questions to a variety of sharply focused inquiries; others have proceeded from a "narrow" inquiry to a variety of broad questions. All have sought, through a serious intellectual enterprise, to associate freshmen in a close, provocative way with an interested scholar.

The seminars have usually met once a week, generally for 2 to 4 hours in the afternoon or evening. Some have been directed largely by the seminar leader; others, in outward appearance at least, have been directed to a large extent by the students. The nature of the students' work between meetings has varied greatly with the nature of the seminars. Often it has been carried on in the laboratory, often in the library, and sometimes outside the

university,—in the streets of Cambridge or Boston, in museums, at the State House, or wherever an inquiry has led. In almost every instance, substantial initiative has been demanded in the organization and execution of individual work.

Most students have written extensively and many have published papers even though publication has been strenuously avoided as a goal of the seminars. The students' work has not been graded in any way, but a few students who have failed to take their work seriously have been excluded from their seminars or denied credit.

Because the seminars have depended so much on the interests and style of the seminar leader, it is difficult to give a valid general description of their substance or activities. However, some general characteristics that have been significant in determining the shape and impact of the seminars are summarized below:

1. The seminars have utilized inquiry in depth—

   As a means of demonstrating the nature and methods of a significant academic area.

   To provide opportunity for the student to discover what scholarly inquiry in *general* is about and the degrees of competence, imagination, discipline, and honesty required in its pursuit.

   As a means of taking the student quickly to a level of inquiry at which the interdependence of fields becomes clear and inescapable.

   To give early opportunity for the student to test his academic predispositions.

2. The seminars have sought, by associating the student closely with a member of the faculty and a small group of students—

   To give live, close demonstration of the ways in which an educated mind approaches intellectual problems.

   To provide a mobile vehicle for pursuit of investigations.

   To make it possible to tailor instruction in such a way as to provide maximum challenge to each student and the group as a whole.

   To encourage students to learn from each other.

   To provide for self-examination and self-discovery a supportive context appropriate to the intellectual aims of the university.

3. The seminars have been voluntary and gradeless and they have been generally independent in their identity from departmental courses.

The voluntary and ungraded nature of the seminars has multiplied every one of their benefits. A seminar is not a "required" part of the freshman curriculum, and seminars assign active roles to their participants. This combination has led the student to feel that he has a personal stake in the quality of the seminar and a personal responsibility for it. He feels exhilarated when things go well, and guilty when things go badly.

The voluntary nature of the seminars has also been important for faculty, both in granting freedom in seminar offerings and in allowing flexibility in their form and content. For although the university is committed to repeated teaching of certain materials, that teaching will be most effective if its form and coverage are not elaborately preordained and if faculty and students have brought themselves to it by initiative, interest, and free will. The seminars have operated under the special advantage of commitment to no particular coverage.

The fact that the students' work in the seminars has not been officially graded has proved to be very important. It has long been argued in defense of grades that they are after all only a symbol, and that if the student is genuinely concerned with learning, his attitude toward his education will be unaffected by grades. However, this defense may underestimate the impact of symbols. Symbols give meaning, and the symbol which is a grade may give powerful meaning to an intricate matrix of motivations derived from teachers, classmates, family, and community. It gives meaning to a set of motivations which have little to do with the student as an individual. In creating the ungraded seminars it was hoped that students might be encouraged to come to terms with themselves, and that then they would find motivation for learning in themselves or in the substance of the seminars.

Experience has justified that expectation, and partly because students discovered a difference between being "examined" and being "graded." Recurrently students have said that in the seminars they *were* examined. They were examined every time the seminars met—not just at midterm and finals. They were examined by their peers as well as by the teacher, and they were examined in a way that

seemed to them more rigorous and effective, while more personal and constructive, than any formal examination. Furthermore, this kind of examination tended to seem unusually real because it did not involve talking or writing into a vacuum.

At its best, the environment of the ungraded freshman seminar can provide what is rarely found in courses—a creative environment for failure. Not only are students more willing to make mistakes, they are more willing to expose them. Because no one is grading and because criticism becomes a natural process, both students and seminar leaders feel freer to be incisive in their criticism. Just as every week the "student is examined," so he has opportunity for failure—to fail *in detail* and along the way, rather than monumentally and totally on a final exam. Students present an idea, see it misunderstood, and have immediate reason and chance to be more lucid. They undertake experiments that cannot work. In consequence they learn not only that they were wrong, but more important, they learn something about experiments.

The Environment of the Seminars

As important to the seminars as the nature of their substance has been the nature of their environment. Here the seminar leader has had first importance.

The role of the good teacher in the freshman seminars has been not only to transmit knowledge but to provide personal demonstration of the nature of scholarship and to create a setting in which students might discover how to learn for themselves and from each other. There is nothing novel about that role, and it is never an easy one. It demands a mobile command of a wide area of inquiry, infectious interest in that area and in teaching, and the ability to sustain a constantly threatened balance between direction and nondirection. The closeness of the seminar leader may tempt the students to ask him for answers they should be discovering for themselves. Finally, the seminar leader may find that in the attempt to be both teacher and colleague he has not come across effectively as either. However, the seminar is designed to exploit this dual role, because the seminar's form is extraordinarily adaptable and offers the seminar leader the advantage of being able to teach in the way that best suits his temperament and his convictions.

The influence of the seminar leader upon his students is more difficult to describe than is his role. However, from the first four years of the seminar program one important conclusion has emerged: the seminar experience has disproportionately increased the undergraduate's connection, or *sense* of the connection, with the faculty. Students who have participated in seminars have become, as a group, less hesitant about seeking out faculty members to ask questions, seek advice, or merely to engage in conversation.

It may also be worth noting that through the seminars the faculty have come to know well and early a great many undergraduates. Most of the seminar leaders recently interviewed who had given seminars four years before recalled every student who had been in the seminar and knew what had happened to many of the students in the intervening three years. Graduates of the seminars had continued as informal advisers or as faculty assistants. As juniors and seniors, they had acted as tutors or had offered advice on thesis preparation; and in several instances they had periodically reassembled for reunions.

Accomplishment of the Program's Original Objectives

As stated in Part I above, the Freshman Seminar Program at Harvard has sought to achieve four broad objectives. Evaluation of the relative success of these attempts follows.

1. *To sustain preexisting commitment*

In 1959 there was great concern at Harvard about the student who came with a strong and advanced interest in a particular field, but soon found himself in courses that neither offered much depth nor required initiative or involvement. In some instances this experience had not only been hard on morale but had seriously undermined a potentially fast and durable engagement in the life of the university. By offering, in some seminars, an opportunity to sustain that initiative and interest while simultaneously carrying on essential course work, the faculty hoped to capitalize more effectively the strengths of these "committed" students.

To some extent, this concern has proved to be wrong. In the first place, the evidence is that relatively few students bring to Harvard extraordinary commitment to a specialized field. In those exceptional cases in which students have brought with them a mature and well-founded competence, exploitation of that competence has often, especially in the sciences, not re-

quired a seminar. There have been students, however, who have come with a single-minded purpose and found in a seminar exercise for a professional preoccupation. When they have known themselves well, the opportunity has been invaluable. But most of the freshmen for whom the seminar program sought to provide opportunity of this kind have been far less confident of their academic predispositions and have used the seminars less to sustain commitment than as a means of testing it.

2. *To provide a vivid and challenging introduction to some significant area of study*

Freshmen not only want to know *about* the areas of study offered by the university but they also want to comprehend their essential nature. They not only want to know "What is known about chemistry, or philosophy, or history?" but also "What is its significance? *How* do we know, and how does what we know relate to other knowledge? What kinds of things are yet *un*known? And why does anyone bother?"

The conventional course may often provide such insight, especially if it is taught by someone who visibly embodies the spirit of the field. But the conventional course, because it is committed to cover an extensive body of material, operates at a disadvantage. Even the "post-hole" approach (dig here for a while and then skip on and dig again), unless masterfully handled and augmented by opportunities for individual investigation, may often seem a frustrating drill.

Because there is in every area so much to be known it was a thesis of the seminars that they should offer immediate and vivid demonstration of the nature of the area, its relation to other areas, its bases and its methods, and its demands and limits. Otherwise, in the busy and essential process of learning *about the field*, the student may fail to discover, or discover too late, what the field is about or his place in it. By sacrificing coverage and the artificial neatness which coverage may necessitate and by entangling the student in the *work* of the field, it was hoped that both understanding and motivation might be enhanced. The seminars were in no sense to replace departmental courses; they were, ideally, to heighten their impact. There was concern that such experience might lead freshmen to conclude that scholarship is easy, that the hard and orderly study required in most fields is superfluous and beneath their dignity, that well-meaning seminar leaders might be overly protective, might strew roses along the path of scholarship. No case has

been found in which this has happened. Students who came with visions of roses have been disillusioned, and those who came without preconceptions have in most cases gained respect for both scholarship and the orderly and rigorous study which scholarship presupposes.

3. *To give the student a sense of engagement in the life of the university*

When the seminar program began, what seemed to be needed by many students, more basically than introduction to an intellectual area, was a sense of engagement in the life of the university. It was hoped that the seminars might provide such students, within the formal curriculum of the college, better opportunity to come to terms with themselves, and with themselves in the university.

A major goal of the seminars was to generate an atmosphere of intellectual hunger and to encourage the student to exploit imaginatively the resources of the university. It is clear from student reports that for at least some students the effects of this engagement have gone beyond the curriculum. Some have felt freer to pursue extracurricular interests to which they previously had feared they could not risk commitment. More often, however, the evidence speaks of a gradual but sure engagement in the curriculum itself.

One student wrote:

> I found that the seminar work, where responsibility falls on me alone (although with guidance from the seminar leader), made me grow up to responsibility much faster than any other courses.

Another reported:

> In narrowing our focus, we have widened our grip on the intellectual content of education and have been forced to see ourselves in a personal relationship with it.

4. *To facilitate intelligent choice of field*

Harvard's students are required to enter a field of concentration in their sophomore year. If a student were to choose a "major" intelligently, it seemed important that he understand what study in the university is about, and that he have a viewpoint within the university from which to examine his options. The seminars have sought to provide both.

The evidence suggests that the effect of the seminars has, for most students, been broadening. Although two out of three students have concentrated somewhere in the area of their seminar, they have frequently done so with clearer and broader under-

standing as a result of the seminar. For many students, although they remained in the same area, a seminar seems to have demonstrated effectively the importance of an understanding of other fields. However, there have been many whose experience in the seminars has served primarily to disillusion. One such student reported:

> The seminar has not differed from my expectations, so much as philosophy has. The great virtue (or drawback) of a seminar is that it places you on intimate terms with its subject matter, so that you may soon find out whether or not your love of the field is genuine. I have discovered (not too late) that philosophy is not what I thought it was. For that discovery alone, the seminar has been very valuable to me—albeit somewhat disappointing.

Student and Faculty Reaction to the Seminars

Students have repeatedly said that their freshman seminar was the key intellectual experience of their first year. Close involvement with scholarship gave them early understanding of the nature of the university; they have stated that they felt engaged in the university's intellectual enterprise, an affirmation heard more usually from honors candidates in their senior year.

The majority of faculty members who have conducted seminars have been enthusiastic and believe in the program. They utilized the seminar method to experiment with innovations in the teaching of freshmen, and many of them conducted extraordinarily successful experiments.

The Future of the Seminar Program and Its Relation to Independent Study

In March 1963, freshmen seminars were established on a permanent basis at Harvard. The recommendation for their continuance stressed that the seminars should remain flexible, and that they should retain both their emphasis on inquiry and their voluntary, ungraded nature.

Underlying this recommendation was a belief, grounded in the experience of four years of seminars, that the freshman year was an appropriate time to engage students in the kind of "independent study" which seminars involve. This belief resulted, in large part, from evidence that the most important impact of the seminar leader upon his students has had to do with the inter-relatedness of different kinds of learning, and with scholarship and education

as "process." Unhappily, a frequent side effect of the lecture course is that it represents learning in discrete, neat units and as a completed process, or nonprocess. The student hears the lecturer report on the results of inquiry. Too rarely does he have the opportunity to see behind the report and the outline on the blackboard to the difficult, continuing, often erratic adventure on which they are based. And his consequent tendency to see learning as a mechanical accumulation of "givens" is encouraged by final examinations and by the structure of the curriculum. "So many lectures on revolution in history yield an accredited understanding of revolutions, and so many additional courses of lectures produce, at their conclusion, a historian." Teachers know that this is not so, and the student *suspects* it is not, but he too rarely has opportunity to discover what *is* so. The seminars, at their best, have given freshmen the opportunity to see a scholar engaged with them in the process of inquiry, and that process itself, rather than the classroom, has become the environment of learning.

INDEPENDENT STUDY IN HONORS PROGRAMS

Philip I. Mitterling*

THE EXPERIMENTATION introduced into undergraduate education by the national honors movement during the past decade has brought innovations which have invigorated the entire educational enterprise. Among all the innovations and accomplishments, none has been more significant than the introduction of independent reading and research. Talented undergraduates have demonstrated that they are capable of performing sophisticated and demanding work with only a minimum of supervision. Professors, on the other hand, have found a more reliable means of evaluating student ability and performance than the written or oral examination.

The value of independent study in honors has been emphasized by the Inter-University Committee on the Superior Student (ICSS) since its establishment in 1957. The fifth of the ICSS's 16 major features of a full honors program states: "Make the programs varied and flexible by establishing special courses, ability sections, honors seminars, colloquia and independent study. Course credit for this is important to the students. . . ." Of the 286 programs inventoried several years ago by the ICSS, 227 included independent work. These statistics, however, are neither inclusive nor current, which means that there are many more than 286 programs for able students and significantly more independent study efforts now being carried on in colleges and universities than the inventory indicates.

Independent study in honors programs represents a diversity of methods, but it is definable, nevertheless, in terms of established approaches and practices. Pedagogically, it is individualized instruction outside the formal class. It includes both learning the old and discovering the new. It is supervised reading as well as research, and it involves tutorial, colloquia, and seminar methods. Defined this broadly, it is one of the fundamental foundations of the comprehensive honors program, the program that seeks enrichment and flexibility as well as breadth and depth.

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Identifying independent study with general education, or the attainment of breadth in honors, would seem to be out of place, but in practice this is not the case. Different approaches to independent work, in fact, have given general studies new vitality. In some honors programs, students complete general requirements for graduation through tutorials or supervised reading, analyses, and writing. In others, general education is emphasized throughout the four years and is provided by utilizing a number of inventive interdisciplinary approaches, each involving independent work.

The colloquium, more than any aspect of general honors, has revitalized general studies. This is a conference method, usually interdisciplinary in content, instruction, and student participation, which covers a wide range of topics instead of a specific theme, and, unlike the seminar, emphasizes dialog and discussion rather than research and writing. But it is important to mention also that there is little consistency in the use of the words "colloquium" and "seminar" in honors programs. Many honors seminars employ the colloquium method.[1]

The colloquium then is a method, not a course. It is independent reading and group discussion. Professor Bertram Morris, Chairman of the Philosophy Department in the University of Colorado, delineated this perceptively when he said: "The . . . colloquium is not a course. It is not a class. It does not ask for recitations. It does not aim at filling in subject–matter gaps. It is not intended to atone for educational corruptions. It is not a compensation for students bored by weary educational cynics, devitalized sensualists, or fanatical ideologists. On the contrary, it is at best a formal-informal meeting of select students with select professors for a discussion of select topics aimed at: (1) provoking discussion, (2) eliciting depths of students' learning, (3) cutting through the clutter of meaningless bits of arid specializations, and, in the process, (4) encouraging students to find their intellectual bearings. . . ."[2] The professor presides only to keep discussion in line. As Professor Morris further emphasized, superior students ". . .themselves determinedly. . . sift out the trivialities from the vitalities. . . ."[3] and in this way the dialog becomes disciplined. Through disciplined conversation some students discover new intellectual strength, as well as humility, and gain a new confidence in themselves.

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[1] See *The Superior Student* (Newsletter of the Inter-University Committee on the Superior Student), Vol. 4, No. 2, March 1961 and No. 3, April 1961, p. 28–30.

[2] *Ibid.*, Vol. 4, No. 2, Bertram Morris, "The Colloquium Is Not a Course," p. 20.

[3] *Ibid.*, p. 21.

By way of depth, or specialization in honors, independent study had enabled the talented student to probe more deeply into the literature and intellectual discipline of his major field. Departmental honors have emphasized penetration and research rather than the mere accumulation of credit hours. This is especially true in the sciences where the National Science Foundation's Undergraduate Research Participation Program has stimulated independent work. Nothing comparable is being provided nationally for the budding humanist, but undergraduate humanistic studies are growing. Dedicated professors and liberal institutions are providing the guidance and the wherewithal for independent reading and research in these fields.

Departmental honors programs also provide enrichment through the use of the seminar (as distinguished from the colloquium). This is a conference method which follows a general theme and emphasizes reading, research, writing, and the preparation of reports, essays and papers. Acquaintance with a given body of knowledge and research in its sources is the principal objective. Again, this is largely supervised independent work.

Independent reading and research are also the bases of most of the honors programs in professional schools. Honors in engineering, business, agriculture, forestry, medicine, and others emphasize the achievement of flexibility in usually inflexible curricula through individual reading and research projects. The student is encouraged to set his own pace, develop initiative, and thus gain professional responsibility. Some professional schools also are successfully employing the colloquium method to provide interdisciplinary experiences. Rewarding colloquia are being offered in the School of Agriculture at the University of Illinois and in the School of Business Administration at the University of Washington.

The successful employment of independent study in honors programs would seem to foretell similar results on the graduate level. Yet Bernard Berelson's study of graduate education caused him to be sharply critical of the application of such work in the graduate school. In *Graduate Education in the United States* he expostulated: "There is a narrow line between more independence for the students and less concern for them—between independent work on the one hand and faculty neglect on the other. In any case independent study is a value not without its cost, and it is not altogether clear just how valuable it really is. . . ."[4] Even though

[4] Bernard Berelson, *Graduate Education in the United States* (The Carnegie Series in American Education), New York: McGraw-Hill, 1961, p. 208–209.

performance certainly is not equal in all institutions, the value of independent study in honors is unquestioned. It has brought about the use of stimulating pedagogical approaches and has provided enrichment, curricular flexibility, and the individualization of programs. In effective programs, the honors graduate has learned self-motivation, attained a stronger sense of personal responsibility, and has gained intellectual strength.

INDEPENDENT STUDY AND THE ACADEMIC LIBRARY

Patricia B. Knapp*

THIS PAPER discusses the library implications of independent study defined in two ways. The first part accepts the most literal definition and points to the rather obvious facilities and services the library might be expected to provide in accordance with the degree to which the student is "independent," that is, responsible for his own study. The second part discusses the library implications of "acquiry" and "inquiry,"[1] referring particularly to our experiences with inquiry at Monteith College.[2]

"Independent" vs. "Individual" Study

When an independent study program is designed to accommodate a burgeoning student population, it may simply inundate the library. More students need more chairs and tables, more books, more librarians to charge out the books. But this impact stems from the increasing enrollment not from the independent study as such. Let us begin this discussion, therefore, by limiting ourselves to the kind of program which is likely to have more than a merely quantitative impact on the library.

From the start we can rule out the kind of independent study which involves programed textbooks or teaching machines and the kind which calls upon the student to read the purchased books he would have read in a traditional course, merely providing him with less direct assistance in mastering them.

Similarly, let us rule out the kind of independent study which is organized around a long list of required readings. Such a course

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[1] For a discussion of this useful distinction, see Winslow R. Hatch, "What Standards Do We Raise?" *New Dimensions in Higher Education*, No. 12, Washington: U.S. Government Printing Office, 1963, 28 p.

[2] Monteith College, Wayne State University, was founded in 1959. It provides a 4-year curriculum in general, liberal education which its students take concurrently with preprofessional studies, specialized work in one of the major fields of the College of Liberal Arts, or an individually planned program of advanced general studies. The Cooperative Research Program of the U.S. Office of Education provided Monteith with a grant to develop a program of library-instructional integration in the Monteith curriculum (Cooperative Research Project No. 874, "An Experiment in Coordination between the Library and Teaching Staff for Changing Student Use of a University Library").

makes the same demands on the library whether the evidence of student reading is expected to appear in class recitation, group discussion (whether the instructor is authoritarian, permissive, or not present at all), quizzes, papers, or merely in a final examination. Thus the number of students rather than the style of presentation makes a difference to the library, if the library is expected to provide the books on the reading list. (The ever-increasing availability of paperback editions makes it less and less necessary or economically efficient for the library to provide such readings.)

The independent study program which would seem to have more than a purely quantitative impact on the library is the kind of study program which calls for individualized work. It is a study program in which the student is not merely expected to study alone and at his own pace but is also given considerable freedom to determine what and how he shall study. In honors seminars, tutorials, directed reading courses, and undergraduate research projects, the student is usually expected to develop his own line of inquiry and to pursue it in his own way. If more students are enrolled in programs of this kind, the multiplication of individual choices will clearly require greatly expanded library collections and larger and more specialized reference collections and services. Indeed, if such programs are offered to large numbers of students, many college libraries will find it impossible to provide adequate resources for them.

But are we not still talking about a quantitative impact on the library? Does the tremendous growth of independent study programs really mean only that libraries need better support so that they can provide more of the same, or does it mean also that a different order of library service is required? To find the answer to this question, let us begin by considering the library requirements of individualized work in certain typical "conventional," that is, nonindependent courses.

No independent study program opens up a wider range of potential subjects on which the library might be expected to provide materials than the library paper traditionally assigned in freshman English. Here the student is obliged to locate library sources and is expected to follow prescribed procedures in using them, but he is (at least theoretically) utterly free to write on any topic he chooses.

Similarly, for the term paper assigned in most conventional courses the student is often expected to use sources other than his textbook or the books listed as collateral or "optional" readings for the course. Here the range of topics is not so broad, because it

falls within the limits set by the scope of the course. But the student will be expected to delve more deeply into his chosen topic. The typical term paper, then, not only allows the student considerable leeway in his choice of topic but also encourages him to explore that topic in some depth.

At a more advanced level, the librarian is accustomed to dealing with the intellectual elite of the student body, those students who enroll in small, advanced seminars, those who sometimes become the protegés, the research assistants, almost the junior colleagues of certain members of the faculty. Such students are encouraged to develop their own specialized interests and to pursue them intensively. In the process, they often tax the resources of an undergraduate library.

Each of these situations in conventional courses calls for individualized study. But in each case there are limits which keep the demands on the library within manageable bounds. The freshman English professor is never so concerned with the student's freedom in choosing a topic for his paper as he is with the student's experience in locating, organizing, and presenting information. The student is encouraged, if not required, to choose a topic on which materials are readily available.

Similarly, the prudent term-paper writer is likely to select a topic on which the library has adequate holdings. Such a topic may gain an extra advantage from the fact that the library collection usually reflects the particular interests of the faculty.

When we move to the work of the academic elite in the advanced seminar, the tutorial, or the independent reading course, there is no longer an assumption that the student is expected to fit his pattern to the available cloth. There is usually, nevertheless, a certain self-limitation which arises from the close association such students have with the faculty; the interests of these students usually stem from the enthusiasms of the faculty. Inquiry at this level, moreover, while not precisely limited, is at least shaped by the student's previously acquired familiarity with his field. The direction of his inquiry is inevitably influenced by his knowledge of the field's major concepts, its classic authors, its accepted methodology, even its journals and societies. The library requirements of individualized work at this level are not very different from those of the faculty. The library provides for them as well—or as poorly—as it serves the needs of the faculty.

The reason why individualized work in such conventional situations does not seriously overtax the resources of the library is that the independence of the student is never as complete as it seems. His work is prestructured in one way or another. The pro-

fessor recommends topics, he suggests readings, he guides procedures, he serves as a model; in one way or another he directs the inquiry. Only in the case of the academic elite does the prestructuring derive at least partly from the student's own knowledge and background in his field. Does this mean, then, that the opportunity for all-out independent study can and should be offered only to those students who have acquired a solid background in a subject field, and even then, perhaps, only to the more gifted among them? I think not. But it does mean that we must find some substitute for faculty prestructuring, not only to keep the work within the range of the library's capacity to support, but also to make it a fruitful learning experience for the student.

We may be able to arrive at some conception of what such a substitute might be as we consider the library implications of the acquiry-inquiry dichotomy.

An Inquiry Into "Acquiry vs Inquiry"

In his pamphlet, *What Standards Do We Raise,* Hatch indicates that—

> A distinction should be made between "instructing" and "teaching." The necessity of making this distinction is the demonstration that in the act of acquiring information the actual presence of a teacher is not necessary and may not be desirable; that individual students can "instruct" themselves (independent study) and apparently do this quite effectively. If "informers" or "instructors" have to be drafted to manage acquiry, such as a librarian or a technician in a learning resources center, they can be drawn from the ranks of those who are most adept at purveying information. Teachers may need to assemble and prepare such materials as books, films, and tapes; they may occasionally make televised and other presentations, transcribe their lectures and "program" some of their materials. But they should not curtail—or be permitted to curtail —the amount of time they have for "teaching."[3]

This statement, examined in the light of the distinction made above between independent and individualized study, suggests that where students are independent in the sense of being free to work alone and at their own pace, "teachers may need to assemble. . . materials." Let us put this type of independent acquisition of information in the category with independent study through teaching machines, textbooks, or prescribed readings and rule it out of the present discussion as having no impact other than quantitative on the library. But where students are also given some measure of independence in deciding what and how

[3] Hatch, *op. cit.*, p. 22.

they will study, the librarian may be called upon to "manage acquiry," to "instruct," to "purvey information."

These three terms are used almost as if they were synonyms. It seems to me that they are not. Perhaps a discussion of the flavor of difference among them may shed light upon the new role, or rather different emphasis in role, for the librarian which is indicated in the quoted statement.

Librarians would probably express the function of "purveying information" as "assisting the student in his search for information." This is not a new function at all; this is what they do all the time. But neither is it a substitute for the "prestructuring" which, as we have seen above, makes it possible for libraries to cope with the individualized work in conventional courses.

Such prestructuring is much more clearly suggested in the phrase "to manage acquiry." Managing the acquisition of information suggests planned learning experiences. The idea of the planned learning experience is one which deserves much closer examination than can be given here, but, for the moment, let us say that it implies at least that appropriate resources should be available, that they should be organized for retrieval, and that the student's experience in retrieving information should be neither the passive acceptance of "spoon-feeding" nor the active but time-consuming process of trial-and-error. It should be a genuine learning experience in itself; it should contribute to the student's sense of satisfaction in the kind of discovery which results not from the lucky accident but from constructive effort.

Concern that the student's acquistion of information in the library or in the "learning resources center" be a true learning experience is also implied in the suggestion that the librarian (or technician) serve as an "instructor." But where "management of acquiry" suggests planned learning experiences, "instruction" suggests accommodation to students' individual differences in capacity, interest, need, and cognitive style.

Until recently, college and university librarians have rarely been given the opportunity, let alone the responsibility, to manage acquiry (except in the sense of acquiring and organizing the library collection) or to instruct (except in the sense of helping students locate information). If they are to do so now, in connection with independent study programs, they must be drawn into active collaboration with the teaching faculty.

If the librarians are to have appropriate resources available and are to manage them so that they will enhance the student's learning, they must work closely with the faculty in deciding what materials are to be assembled and how they are to be or-

ganized. They should strive to become—and should be accepted as—learning materials experts.

If they are to instruct students in the acquisition of information, they must be cognizant of the teaching aims of the faculty. They need to know the answer to the question: information for what? They should be able not merely to assist the student in his search for information, but also to help him discover what information he needs, to help him develop a strategy for the acquistion of information.

If librarians are to instruct effectively, moreover, they must know something about theories of learning, educational philosophy and psychology, principles of curriculum construction, teaching methods and procedures, and the social forces which affect education. They must see themselves, and must be seen by faculty and students alike, not as clerks, not as information specialists, not as purveyors of information, but as educators.

In summary, the case presented thus far argues that independent study defined as "independent acquiry" has implications for the library which are not merely quantitative but which indicate a significantly different role for the academic librarian. It follows that any college which embarks on a program of independent study so conceived must be concerned not only that the library has adequate space and adequate resources but also that it has enough librarians, librarians who are *qualified* to take on this new and extremely demanding role, and that these librarians are given more than formal opportunity to collaborate with the teaching faculty.

Let us now consider the possible library implications of "independent inquiry." Hatch defines inquiry as "that process of learning and of teaching in which information is examined. It is that which is done after information has been provided or learned; it is the reason for acquiry. Inquiry is the essence of honors, of independent study—properly understood and practiced—and of problem-oriented instruction."[4]

In discussing the library implications of independent inquiry so defined, I should like to draw upon certain experiences at Monteith College, particularly one which demonstrates the relationship between "inquiry" and "acquiry." The first major undertaking students encounter at Monteith is a freshman research project assigned in the social sciences course in the third quarter of the freshman year. The assignment is highly valued by the faculty—and they communicate this view to the students—as an

[4] Hatch, *Ibid.*, p. 21.

experience which can convey a fundamental understanding of the nature of social science, the kinds of problems it deals with, its basic assumptions, the various approaches, theories, methods, and techniques it employs. Each student must select a research question which interests him, develop a plan for studying the question, carry out the plan, and report his results. (Since this is freshman work, it is elementary and limited in scope. But it is "real" and "original" work all the same.)

Here the inquiry is likely to begin with a problem stated in very general terms; the student acquires information, perhaps about how others have tackled similar problems, and he attempts to refine his own statement. He may arrive at a general hypothesis. The inquiry now moves toward speculation as to potential indicators to be used in formulating an operational statement of the hypothesis; the student acquires information which helps him decide which indicators promise to be valid. The inquiry next turns to methods of gathering data pertaining to the selected indicators; the student acquires information about research techniques and instruments. And so on and on. Thus inquiry leads to acquiry, acquiry to further inquiry.

The first time this project was assigned we attempted to make the student's acquisition of information as independent as possible. Every student was required to use the library to orient himself to his own problem. (Some students selected problems for which the library became also a source of data: for example, in historical or content analysis studies.) He was expected to find sources which would help him define his problem and place it in the context of published social science research, sources which would suggest appropriate data-gathering methods and instruments, and sources of background information. In preparation for this library work a one-hour briefing on some of the major bibliographical tools in the social sciences was offered, and copies of the Wayne State University Library handbook were distributed.[5] The results of this sink-or-swim approach were almost disastrous to the cause of independent inquiry. The students were lost and baffled and angry, and the faculty were dismayed at the quality of the references which appeared in the final papers. Many students reported that this university library of three-quarters of a million volumes had "nothing" pertaining to their problems. Most found "something" but what they found the faculty judged

[5] Monteith has no library of its own; Monteith students use the Wayne State University libraries. The library's capacity to provide resources for independent inquiry is less of a problem here than it would be in a smaller institution. The question of what the student derives from the experience, however, is still to the point.

inappropriate for college-level work. As a result, many of the instructors were ready to conclude that freshmen students simply could not be trusted to find their own sources in the library, that they had to be told what to read.

Hatch states that—

> Quality may be indicated by a college's disposition to make a distinction between the acquisition (acquiry) and the examination (inquiry) of information. It is manifested in its success in getting students to accept a larger role in "acquiry" and in getting its faculty to make their teaching a joint "inquiry."[6]

After examining our first unhappy experience with the library component of the freshman research project, we concluded that our difficulties arose neither from the unwillingness of our students "to accept a larger role in *acquiry*," nor from the faculty's unwillingness "to make their teaching a joint *inquiry*." They resulted, rather, from the interplay between inquiry and acquiry, from the students' lack of adeptness in the intellectual process of using the question (inquiry) to shape the course of the search for information (acquiry) and then of using the information to direct further inquiry. From our work with the Monteith program, we have found, in general, that average freshman students suffer from the following handicaps:

1. They have a basic misconception of the function of information in inquiry; that is, they look for and expect to find "the answer to the question" instead of evidence to be examined.
2. They are unsophisticated in evaluating books. In the necessarily rapid process of using the open shelves, they select books without taking into account such clues to their probable worth as date of publication, qualifications of author or sponsor, or quality of references cited. Instead, they select, on the basis of relevance (as close as possible to "answering the question"), readability ("not too technical"), and persuasiveness ("I agree with it.").
3. They think that the card catalog, the classification system (the arrangement of books on the open shelves), and the *Readers' Guide* are *the* keys to contents of the library, without really understanding the organization, the limitations and advantages of these tools.
4. They are not aware of the organization of scholarly literature. For example—

[6] Hatch, *op. cit.*, p. 5.

a. They do not appreciate the subtle difference between the organization of literature within a discipline (in terms of theory, concept, approach, method, school, and style) and the organization of literature within the library (in terms of subject, form, period, and place).

b. They are not acquainted with the bibliographical tools which provide access to scholarly literature: that is, the "guides to the literature," the surveys of research, the annual reviews, the abstracts, and the special indexes.

In the conventional, nonindependent program, the constant guidance of the faculty obviates these difficulties. It is possible that an independent study program which provided for intensive collaboration between librarians and faculty and which then gave librarians responsibility for "managing acquiry" or instructing could make similar guidance available. But it is also possible that students can be *taught* how to identify, locate, and use information in the quest for understanding, and that capacity for independent inquiry need not be merely a concomitant of mastery of a field of specialization for the elite student, but an instrument for learning for all students.

This is the possibility explored at Monteith. After our first experience with the freshman research project, we have made considerable progress toward diagnosing the problems encountered and devising methods of dealing with them. We hope that the results of our efforts in this direction, presented in the final report of the Monteith Library Project,[7] have contributed something to the achievement of a more precise view of the implications of independent study for the academic library.

[7] Patricia B. Knapp. "An Experiment in Coordination Between Teaching and Library Staff for Changing Student Use of a University Library." (Final report of Cooperative Research Project No. 874, U.S. Office of Education; microfilm and photocopy available for purchase through Library of Congress Photoduplication Service, Washington, D. C. 20540.)

INDEPENDENT STUDY AT KNOX COLLEGE

René N. Ballard*

SEVERAL YEARS AGO Knox College undertook to emphasize as one of its important educational objectives that its students learn to master knowledge independently. The Ford Foundation granted funds to enable us to more readily provide the faculty with the necessary time for planning and for preparing appropriate study materials.

It might have been helpful if from the outset the Knox College faculty had avoided the use of the words "independent study." We had difficulties in discussing the subject because the term had acquired a special meaning from the experience of most of the teachers, and it was presumed to indicate only situations wherein individual students pursued individual studies for which they were specially enrolled: that is to say, a course on the famous model of Mark Hopkins. The investigations, visitations, and discussions conducted by the faculty during the past several years have enlarged the concept of independent studies to encompass all those curricular plans, course outlines, teaching procedures, and learning situations which endeavor to rely more upon the student and seek to make him less dependent on the teacher's tutelage. The term is now generally understood to include all appropriate instructional devices introduced into our courses to accomplish these ends. In part, educational organizations deal with quantities such as numbers of teachers and students and must strive to distribute wisely the talent of the former with the abilities of the latter and the time of both. These economic relationships cannot be ignored in educational enterprises and every academic term witnesses some changes in the instructional process which were provoked primarily for economy and not calculated for improvement of the learning-teaching situation.

Another basic policy decision made by Knox College was that we should not approve some model program and inaugurate it by general faculty regulation. Rather, Knox attempted to clarify the definition of independent studies, communicate appropriate infor-

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mation on other programs, and stimulate desirable educational innovations in teaching procedures by individual faculty members in their own course plans and in the departmental plans for its "major."

Plans were made for involving as many of the faculty as possible in the program. Twenty faculty members have visited other colleges in order to discuss with faculty and administration those aspects of their educational activities related to the problem of independent studies. In addition, faculty members in ten departments were given particular assignments to expedite the definition and review of the major in that department.

The importance of these faculty visits can hardly be overestimated for their effect on the attitudes of the faculty toward thoughtful changes in our educational program. Considerable information was brought back as to what might be done in theory and what probably was unwise in practice. More flexible dispositions toward educational innovation or experimentation were stimulated. An important by-product of these expeditions, exceeding the direct bearing on independent studies, was the enthusiasm of the faculty teams for the experience of talking "shop" (that is, teaching techniques rather than subject matter) with their professional colleagues on other campuses.

The Independent Studies Committee early concluded that we needed to know more about the actual teaching techniques used on the Knox campus, the attitude of the faculty toward kinds of instructional situations, and the study practices of Knox students. A plan for such research was prepared and several research projects implemented. In addition to these collective activities by the Independent Studies Committee, individual members of the committee assumed particular responsibility for research projects and for the revision of courses that would particularly exemplify the independent study by students.

The findings of these campus research projects were discussed at faculty "round tables" during the academic year 1959–60. Early in the discussions the faculty agreed that it was important to prepare the student to be more self-reliant by making sure that he had the necessary general skills of the competent student. It was also recognized that an expectation must be developed in the student that he would be assigned enlarging areas of responsibility. It was also realized that early in the student's college experience he must learn to expect assignments for which he was not to receive detailed tutelage, to anticipate that such responsibilities were to enlarge, and to realize that a particularly high degree of self-reliance was one of the objectives of education, espe-

cially in the field of his major. Obviously, in order to accomplish these ends the student must be given opportunity and considerable practice in the courses in which he enrolled.

The experiences which obviously should occur as early as possible in the student's college career were those which enhanced his general confidence and competence in using library resources and in forming the habit of becoming familiar with reference aids and with the bibliographies available in several subject-matter areas. Closely related to this educational concern was the realization that more independent studies would undoubtedly result in the increased preparation of reports and in the writing of papers which were based upon the library collections or on other research materials. The faculty, therefore, undertook to strengthen instructional procedures and educational standards in these areas.

A campus style-book was prepared and adopted by the College in order that all departments might more readily require better performance of the student in the organization, form, and annotation of written work. Previously, the responsibility for preparing the student to do such work had rested almost entirely upon the English Department, and the courses were scheduled in the second semester of freshman English. The faculty, however, discovered a serious instructional gap having to do with those students who because of high placement scores in English composition had been exempt entirely from freshman English. Some of these students, it was apparent, were handicapped because they had not had the specific training needed in library use and in the proper scholarly form of research papers. To take care of this need, these students were now required during the first semester of their freshman year to take a one-credit course which consisted of writing a library research paper on a subject related to some topic in a course which they were taking during their freshman year. The subject matter and mechanics of these papers were developed in consultation with the dean of the college and with the faculty member in charge of the freshman course. The completed papers were read also by a member of the English Department. This development has been very successful in accomplishing the desired ends. Important by-products have been to involve all of the faculty to some extent in direct use of the standards of form required by the style-book and through conference in providing some guidance to rather superior freshman students who at the outset of their college careers were engaged in an independent study project.

The library activities required in connection with this new venture were greatly facilitated by the establishment in the library

of a new staff member called the Consultant for Library Studies whose particular responsibility was to improve the competence of students in the use of library resources and to assist members of the faculty in directly incorporating the library as a facility for their course instruction. Several of the course innovations discussed in the following paragraphs are based upon such improved liaison between the classroom teacher and a staff member of the library.

The Consultant for Library Studies seeks to exploit the teaching opportunities created when individual students come to the library with problems arising from class assignments. On these occasions the consultant has an opportunity to supervise the students in the use of the catalogs, reference books, indexes, special collections, and special facilities such as the microfilm reader. She seeks to train such students from dependence upon a member of the library staff in order to proceed more competently and confidently in the utilization of the library's resources. To anticipate such opportunities for individual instruction in the library, indeed to help create such opportunities and to exploit them to the maximum, it has proved desirable for the Consultant for Library Studies to develop close liaison with the classroom teachers. To accomplish this, she has held many conferences with faculty members, met with several departments to discuss their particular relation to the library, consulted with individual faculty members concerning assignments which they had made requiring library research, and encouraged faculty members to submit course plans to her. This has frequently resulted in the modification of course plans in order to directly involve the library consultant.

Special class assignments involving the services of the library consultant have often been made; class-period time has been set aside for classes to come under her supervision, library tours have been arranged; and schedules requiring groups of students to come to her for demonstrations of library facilities have been set up. In addition, teachers have asked the library consultant to do special reference work in connection with the closer coordination of the library with their teaching. In some instances she has visited class sessions in order to become more conversant with the course procedures and objectives related to library services. The library consultant has become particularly concerned with the development of facilities in the library which would adequately serve the instructional operations which are her particular responsibility. She is presently making a study of the facilities of the library and methods for improving their maximum use. She has also become particularly concerned with the periodical and

reference collections in the library and with their organization to provide maximum usefulness to students.

The expectation that more writing and preparation of individual student reports based particularly upon library use would occur has definitely been born out by our experience. The following course procedures demonstrate how instruction may place special emphasis on preparing students for more independent study:

1. The freshman course in Contemporary Political Problems, intended primarily for freshmen and sophomores, includes among its objectives not only a better comprehension of the major political issues of the present but also a familiarity with the basic tools of political science. To achieve these objectives, a great deal of independent work, probably over half the student's total work in the course, is required in the form of papers prepared from materials available in the library. The library consultant works very closely with the instructor of this course in planning the orientation of students to library use. In fact, she takes over some class time for this purpose, and furnishes the students bibliographical instructions on the most important reference instruments and research facilities.
2. The first course in Economics has been revised to require extensive library research. Each student is required to prepare six original papers during the term, each dealing with a different area of economic problems.

Both political science and economics departments are now offering in the form of independent study some of the course work which formerly was provided in conventional classes. All majors are expected to participate in such studies. These course changes are characterized by a drastic reduction in the number of class meetings and by an increase in the number of individual oral and written reports. Oral examinations have also been utilized.

The most advanced departmental change in this direction has been made by the Department of Psychology. This department now expects that all of its majors will offer toward the fulfillment of the major requirement at least one course for which the subject matter has been entirely mastered by the student through supervised independent study. Competence in independent research, systematic reading, and the adequate reporting of the same, oral or written, are specified as one of the educational objectives of the major department. Most of the advanced courses in the department may be taken by a student as an independent project instead of in the regular class procedure. For reasons of

sound economy, however, this is not permitted during those terms in which the course is offered in the ordinary form. Potentially this means that practically all parts of the psychology major program are offered at one time or another as forms of independent studies.

The emphasis during the past two years on more independent study on the part of students has been paralleled by an extraordinary increase in the use of the library by students. Although cause and effect are difficult to demonstrate for a development of this kind, there is no doubt that the dramatic increase in the use of the library has been partly the result of these changes in our teaching procedures. Several of the departments have become more concerned than ever before with the adequacy of the library collections in their fields, adequacy as to breadth, depth, and variety of materials available. It is certainly apparent that an increased emphasis upon independent study extends the demand upon library resources.

The faculty activities summarized above prompted demands for certain revisions of the educational program of the college. As a result, the faculty standing Committee on Instruction prepared a revision of the general education program. Concurrently, the Executive Committee of the Faculty prepared a proposal for instituting comprehensive examinations. This new program was adopted by the faculty at the beginning of the academic year 1960. Among its purposes, this program of comprehensive examinations emphasizes the "reorganization of the major fields of study so as to include not merely separate course units for each student, but also a mastery by him of some materials mainly on his own responsibility and to determine the extent to which he has developed some competence in this last aspect." The program, as adopted by the faculty, grants academic credit for student involvement during the senior year in comprehensive examinations in order to recognize this kind of independent study in his major program.

We believe that Knox College has effectively pursued the objectives set forth for the development of independent studies. Our accomplishments may be summarized as follows:

A. The practice of independent studies has been greatly extended, and current curricular and instructional changes may be expected to utilize this educational method even further in the immediate future.

B. This extension of independent studies has been accomplished in a variety of ways—

1. By establishing procedures which help students to learn to study by themselves.
2. By extending faculty investigations into the curricular and instructional practices at other institutions.
3. By conducting research into the learning-teaching situation at Knox College.
4. By introducing curricular changes in the major departments and by implementing a program of comprehensive examinations.
5. By establishing better liaison between the classroom and the library.
6. By instituting laboratory procedures in departments where they formerly had not been utilized.
7. By effecting desirable economies in the use of faculty time and energy.

C. The experience of the faculty in working toward a program of independent studies has helped to create a disposition favorable to innovation or experimentation and to the need for systematic research and evaluation of the quality of our educational program. This attitude has manifested itself in suggestions from several members of the faculty that we continue to encourage such critical studies of our educational program.

"SEARCH" BEHAVIOR IN UNDERGRADUATES

Stephen Kaplan*

IT SEEMS UNFORTUNATE that the college student so rarely has the opportunity to engage in those very behaviors that we hold to be the sign of a well-educated person. The student is told what to do and when to do it; anything else he does is rarely reinforced and often penalized. In attempting to remedy this situation, I have experimented with a program of required freedom in the introductory classes I have taught over the past three years.

Procedure

At the beginning of the semester the students are informed that they are expected to devote the traditional two hours out of class for each hour in class. Since the assigned readings are brief (averaging under 50 pages a week), the remainder of the time is to be spent reading portions of various psychological books and articles *of their own choice.* The students are thus invited to peruse the psychology shelves in the library. To emphasize becoming acquainted with the range of available material and becoming skilled at selection of appropriate sources, the students are encouraged to read articles and chapters or parts of books rather than entire books.

Three times during the semester a Reading Log is collected. This document includes a bibliography and an account of student adventures in the library. The emphasis is on commentary, evaluation, criticism, and relationships with other psychological concepts with which the students are familiar. Summaries are strenuously discouraged. The feedback the students receive on their logs attempts to guide them toward a more critical and thoughtful discussion, and away from summaries. They are also reinforced for reading on a variety of topics and for their willingness to return a book after reading only a few pages if it proves uninteresting or inappropriate. Despite the students' pleas, their burden of selection is not relieved by receiving any list of "approved" or "appropriate" or "safe" books.

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Results

This technique has met with somewhat astonishing success. The students read more this way than I would dare require of them—several thousand pages in the course of a semester is not unusual. Their level of discussion shows marked improvement from the first to the third log, as does the range and quality of the material selected. The slower students find reading other introductory texts helpful in understanding class material, while the brighter students often select material of surprising difficulty (e.g., Stevens' *Handbook* articles).

One reaction to the procedure is provided by this excerpt from a student's evaluation:

> The method and presentation of reading logs was a new one to me, and I have found it superior to any other type of supplementary work. Its advantages for me have been many, and I can see few weaknesses in the assignment. (Those I have found mainly concern the way in which I carry it out.) No notes—which I find time-consuming and distracting—are necessary when reading, because summaries are not required. This fact alone makes reading much more appealing. Reading can be varied and cover a broad range of topics since no entire book need be read; but a student may also choose any particular area of interest and read intensively. In either case, the subject appeals to the student, and results show it.

The manner of assigning the logs requires self-motivation of the student and demands regular reading without immediate reinforcement. This kind of persevering, independent behavior is not fostered enough in our educational system. Moreover, besides determining what and how much he reads, the student must think critically and constantly while reading in order to present a reasonable commentary, and this interaction increases learning. The student also learns to correlate information and apply what he learns any time it is relevant. In the course of his reading, he not only learns which styles are appealing and which are not, but also the names and some ideas of prominent psychologists with which he might not otherwise have become familiar.

In order to assess the reaction to this technique more systematically, questionnaires were administered to each of the five sections of introductory psychology exposed to this technique. One section did not receive the questionnaire until a year after the students had completed their course; the other questionnaires were administered near the end of the semester, with the understanding that they would remain in a sealed envelope until grades had been sent in. The five introductory sections represent a fairly wide sampling of students and contexts. They included an ordi-

nary introductory group, an honors introductory course, a natural science introductory course, and two sections of the natural science introduction for honors students. The total sample is 65 students of whom 29 are in the honors program.

The results of the questionnaire are tabulated below. Since the results are quite similar across the various sections, the averages for the total sample are presented here. It is clear from the responses to the first item that the students are generally favorable to the procedure. The same attitude is reflected in the responses to the item concerning the "lasting benefit" of the procedure.

Results of Reading Log Questionnaires

1. What is your general evaluation of reading logs?

	Percent
excellent	30
very good	34
good	28
fair	7
poor	1

2. Under this system do you feel that you put in—

	Percent
more work?	75
same amount of work?	20
less work?	5

3. Rank the following in terms of how much lasting benefit you derive from them with "1" indicating most, and "4" indicating least benefit.

	Rank
assigned reading	*2.02*
term papers	*2.44*
book reviews	*3.38*
reading logs	*1.95*

4. Rank the following in terms of how much fun you feel they are, with "1" indicating most fun, and "4" indicating least fun.

	Rank
assigned reading	*2.60*
term papers	*2.66*
book reviews	*2.95*
reading logs	*1.56*

Perhaps the finding of greatest interest is that there is overwhelming consensus that the Reading Logs approach is at least as much and probably more work than other procedures; it is also more fun. This coincides with my impression that the students not only are often highly motivated in a self-directed situation, but also find this a more pleasant kind of motivation.

INDEPENDENT STUDY OF PROFESSIONAL EDUCATION AT CORNELL

L. B. Hixon*

THE UNIVERSITY OF BUFFALO, Cornell University, the University of Rochester, and Syracuse University are cooperating in a series of projects designed to aid in the improvement of education through demonstration of new ways of preparing secondary school teachers and school administrators. The two-part program, intended to become a permanent part of the work of the universities, is being supported during the initial 6-year stage by a grant from the Ford Foundation. The projects, both experimental and demonstrational in character, are administered through the four schools of education with other divisions of the universities closely involved wherever possible.

One aspect of the secondary education project, Inter-University Project I, involves the exploration of ways to implement study of superior students in teacher education programs. Independent study is a major concern.

The Project Definition of Independent Study

The Inter-University Project I defines independent study as a pattern, fundamentally honors in nature, in which students read from a basic bibliography prepared by specialists, have individual conferences with staff members, and receive specific tutorial direction. Formal courses in professional education are not required; rather students are encouraged to work independently.

At Cornell, honors study in philosophical and psychological foundations of education provides for a learning situation where important educational ideas are examined through reading of original writings, requiring extended study and reflection. Methodology, observation, and learning experience are brought into tune with first-hand exploration and trial; independent action is emphasized.

On the campuses of the other three cooperating universities,

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somewhat similar programs are being administered, differing according to the collegiate settings and traditions of the institutions. Each university's program operates independently from the others. The exchange of ideas and experiences is maintained through visitations, conference, and correspondence. The joint efforts operate under a project coordinator, and the free-flow of information between the four universities is constant and voluminous.

The Cornell Objectives

A major objective of the project is to examine and explore variations in independent study of teacher education which will better prepare the more able student for secondary school teaching. This objective includes trial and experimentation with means (1) to coordinate and integrate work in professional education with allied disciplines of psychology, anthropology, sociology, philosophy, and others with the subject being taught, (2) to analyze and try out a body of content in professional education subjects appropriate to the needs of honors students, and (3) to study and analyze the 5-year collegiate education of potentially high-geared secondary school teachers in the effort to develop a total program giving greater direction and coherence to the studies pursued by those entering teaching and resulting in greater maturity in thinking and working with ideas.

Accompanying this objective are a number of key questions hopefully to be answered during the life of the project or in subsequent follow-up investigation. These questions include:

(1) Will independent study of professional education extended over years rather than in semesters or in regularly assigned classes produce a clearer and deeper understanding of teaching?

(2) Through what ways and means may independent study be used to increase the meaningfulness and importance of professional education, particularly as applied to the more able student?

(3) How may independent study of professional education be abetted through programed instruction and other technological advances?

(4) What content of study is appropriate for teacher education, particularly honors students?

(5) What timing and arrangements are best for tutorial conferences? How may the increased demands on professional time and energy, as expended in tutorial conference, be met and adjusted?

(6) Through what means and organization may independent study be augmented through interdisciplinary approaches?

(7) What parts of the independent study program in operation for honors students may be adopted or used outrightly with the average students?

Student Selection

The selection of Cornell undergraduate students is based on the fulfillment of at least two of the following criteria:

(1) Is eligibile for or is actively participating in an honors program.

(2) Ranks scholastically in the upper one-third of his college class.

(3) Maintains an academic average of 80 (B) or better.

Graduate entrants from Cornell are required to score at the 50th percentile rank on the Miller Analogies Test National Norms for institutions granting the master's degree in education, or to rank in the upper one-third of their graduating class. Graduate entrants from other institutions must meet both criteria in order to be eligible for acceptance. In addition, all entrant candidates must secure the approval of the staff representing their teaching areas and acceptance by the School of Education and Graduate School.

The above criteria are considered as minimum requirements. In the interest of selecting outstanding students other factors are used to make comparisons and aid in the final choice. These criteria include the breadth and depth of study in the teaching field, recommendations, activities, and social accomplishments.

The Program at Cornell

Independent study of professional education is being explored through three approaches.

A *first* approach is being tried with sophomores, jointly selected by the School of Education and the Department of English. These students are not in the group selected as project interns as indi-

cated above under "Student Selection." They may be classified as participants in the "on-going," regular program, for prospective teachers of English.

Because of their high academic standing and/or their presence in an English honors program, they are permitted to meet the 8-hour New York State block of foundation courses by means of independent study and seminars. Each student is given an extensive list of readings in educational philosophy and psychology to read over the summer period. They are further required to prepare a paper of interest to them and as suggested by the readings.

During the fall semester of their junior year, the students meet in seminars. Each student presents his paper to the group for comment and counsel. Four professors representing the philosophy, psychology, educational philosophy, and educational psychology departments are in attendance. Concurrently with these seminars the students are asked to do further reading as may be appropriate to individual and group interests and needs. The stimulation from the standpoint of four disciplines leads in many directions.

Twelve students were registered in the program during 1962–63 and 17 during 1963–64.

The *second* approach to independent study of professional education involves all project students selected for eventual teaching internship. Independent study is arranged for the duration each student is registered, whether for 1, 2, or 3 years. Through agreement with university officials, the credit for the 8-hour block of foundation studies in educational philosophy and psychology is delayed until the last semester of the senior or graduate year, or as appropriate to the student's interests. No consideration or penalty is made or assigned by these officials when there is a possible hour-credit overload occurring within a particular semester.

An extensive list of readings in both areas is given to each student. Certain readings are required; others are suggested. To some degree students are encouraged to follow their own interests. Weekly individual conferences are arranged with the two professors representing educational philosophy and educational psychology. During these conferences the progress and understanding of each student is examined and wherever possible the study of foundations of education is related to the many facets of the total project program and teaching in general.

The *third* approach in the Cornell program is being tried in the teaching fields of agricultural and home economics education.

During the first year and as an initial step, a job analysis of the role of the agriculture teacher was completed in the field of

agricultural education. Following this achievement and as a basis for independent study, 38 units which include appropriate suggested activities and readings were developed. The arrangement of the units was made in order that the students would be provided with possibilities for independent action and study before, during, and after internship. Portions of the units were then adapted into programed instruction.

Home Economics education has translated its second required methods course into independent study; the first methods course is introductory in nature and the second methods course is offered concurrently with student teaching. The field has developed its own form of programed instruction to implement independent study.

September Experience, Independent Study, and Seminars

Related to the second approach is the September Experience. Each student interning during the school year is required to spend two weeks at the school where he is to teach, beginning at the time the institution first opens. He is given an eight-page directive which carefully delineates his activities and observations. He is asked to perform many tasks, such as interviewing, observing, riding on a school bus during one of its daily operations, following a pupil through a complete day of classes, and reading selections from two books—*The Discovery of Teaching*, by Brembeck, and *Perspective on Teaching*, by Thomas and others.

A written report on the September Experience is required. During the fall semester the students meet in "pro-seminars" (before teaching) to discuss these experiences with the two professors representing educational philosophy and psychology.

"Concurrent seminars" (during teaching) for these students take place at the teaching centers or on the Cornell campus and are further efforts toward making the educational foundations study more meaningful in terms of actual teaching experience.

Library Facilities and Use

In both approaches to the study of the educational foundations, extensive reading is encouraged. Reading from a wide range of sources is required for some students and suggested for others.

In the first approach students read large sections of 12 books during the summer. These are for the most part original works of outstanding thinkers. Included in the lists are the writings of past and present theoreticians such as Plato's *Republic* and

Dewey's *Democracy and Education.* Several modern texts are added specifically for educational psychology.

The students are encouraged to purchase several of the books. Other writings are borrowed from the project library. Still other works are common enough to be suggested as being available in home libraries during the summer period.

In the fall semester the students are given further lists of books. These are easily obtained from the major libraries on the campus or may be purchased from the campus bookstore.

In the second approach, students are able to secure the books needed for independent study from either the project, departmental, or university libraries. Sufficient copies of required readings are on hand to meet the needs of all project students. Special reading interests are met through the offerings of Cornell's massive library facilities. Inasmuch as students operate "under their own steam," different rates of reading accomplishment exist. As a consequence no one book serves the needs and interests of all the students at the same time.

Quantitatively the range and variety of reading are more extensive in independent study of educational philosophy than in educational psychology. The differences are to be found in emphasis. Programed instruction in educational psychology is being attempted as a means of relaxing the inflexibility of the usual class structure. One of the basic texts in this discipline has been reworked into an adjunct program. Study of the text is followed by referral to the appropriate chapter in the adjunct program, including review, overlearning, and self-diagnosis aspects.

Occasionally the student has difficulty with some section of the program. It is then that he arranges for a special tutorial session. Concurrently with the basic text and its adjunct program there are other reading assignments required in educational psychology. These readings are not as numerous as those in educational philosophy but require the use of libraries and tutorial session.

In general, breadth and depth of reading are accented in the project. The required readings plus readings for special interest produce considerable use of library facilities. In addition, dependence is not made on one or two sources but on many sources, a result of the accent on original rather than secondary and summary sources.

Summary

The past two years were the first of actual project operation. It is probably too early to establish any more than general impres-

sions of the workings and worth of the various approaches to independent study in professional education that are being tested through the project on the Cornell campus.

At this point, it appears that the superior student is influenced and challenged through individual study and individual conference to read more carefully for greater understanding. The individual conference as related to independent study furnishes opportunity for the student to assess his knowledge through critical examination with professors. He is forced to provide more than a surface approach to his thinking. As he discusses and analyzes the readings, completed in private, he is constantly encouraged to relate theory with practice. A sense of importance, reality, and meaningfulness is the result. Development of new insights and interests follow.

There is no doubt that the independent study and individual conference approach of the project helps to counter the often heard criticism concerning the triviality of professional education courses. Significant ideas in education become real. Original works and legitimate research in the field become important. The superior student is challenged to see his reading in the perspective of present day teaching and the existing school situation. He is challenged because the selection of reading material has been made in part according to his own terms, according to his native ability, and in line with his interests.

Observation of the students with superior ability in the project prompts an acknowledgement that independent study and honors work does not immediately become effective. There is a period at the beginning when the student is subject to doubt and perplexity. As effected by continuous work, study, and conference, this initial difficulty is quickly overcome for some, more slowly for others.

Those students who have had previous experience with independent study and honors programs appear to respond and adjust more readily to the similar aspects of the project. Of course, this might be expected. Independent study with tutorial conference is not the same as traditional classroom study. The techniques and motivations differ. A student is required to use greater amounts of his own initiative and resource in independent study than in the regularly scheduled and formalized classroom. He is also forced to think more deeply and with greater concern when engaged in tutorial conference.

In the project there is a certain amount of *esprit de corps*. This is an honors program and the sense of one's being permitted to participate as an honors student appears to be appreciated. At the same time, group identification has become a difficult problem to

solve because of the infrequency of group meetings and lack of student-to-student contact. To meet this problem, *ad hoc* discussion groups are being encouraged wherein students may meet each other more often and identify themselves with the total project effort.

A problem closely associated with the matter of identification with the group exists in the factor of drift. As reported particularly by professors in the foundation studies, the lack of immediate and day-to-day responsibility and contact with the staff concerned produces disorganization in independent study with a few of the students. By and large, this is not a difficulty of the majority of project participants. Most of the students appear to be quite capable of arranging their independent study and are showing more than satisfactory progress under tutorial direction. On the other hand, it is in the interest of the project to develop the habit of continuous and steady study among all the students. Hence, special attention is given to means by which the occasional errant and not so persevering student in the project may be induced to keep on a continuum of effort and direction.

This review is not presented as an implication that all the project problems have been recognized and related, nor that acceptable answers in each case have been obtained. The processes of independent study and tutorial conference are being modified in part as need indicates necessity for change.

Comparisons of the project program with the conventional programs are underway at Cornell. Case studies, extended research, and follow-up evaluations designed to aid in the assessment of the experimental aspects will continue until the end of the project, in 1966, and probably beyond this date.

SELF-DIRECTED STUDENT GROUPS AND COLLEGE LEARNING

Leslie R. Beach*

A FORM OF INDEPENDENT STUDY in higher education which digresses slightly from the prototype is the instructorless small student group, or what investigators at the University of Colorado have referred to as the self-directed study group. The general picture presented by this form of independent study is that of a small group of college students, usually five or six, meeting together periodically and quite informally to discuss subject matter in a course which may be structured and outlined to a greater or lesser degree. To be considered instructorless or self-directed, the situation needs to be one in which there is a very limited contact, if any at all, with the instructor of the course. It is understood that the general course of study or the body of material to which the group is to be exposed is outlined in some sort of course syllabus and includes a textbook or specified reading material.

A recent check through the literature on experimental approaches to college and university instruction reveals that very little is being done with this approach to learning in higher education circles. Despite the fact that educators, social psychologists, and group dynamicists in particular, have been pointing out for some time that growth and learning (defined as a process resulting in changed behavior) are greatly enhanced and made more permanent through group interaction, little use is made of this knowledge in the higher echelons of American education. Actually, a number of studies have generally explored the benefits accruing from group-discussion as opposed to formalized lecture instruction,[1] but not in self-directed group study.

Students Can Learn From Each Other

In a recent human growth and development conference held at Findlay College (Ohio), Dr. Gerthon Morgan, Director of the In-

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[1] R. Birney and W. J. McKeachie. "The Teaching of Psychology: a Survey of Research Since 1942." *Psychological Bulletin*, Vol. 51 (1955), p. 51–68.

stitute for Child Study at the University of Maryland, declared the pressing need today is to give more attention to the way *individuals* learn *in groups*. Said Dr. Morgan: "I want to know more about how children learn *from each other*."[2] And a number of studies such as that reported by Patton[3] have supported the hypothesis that college students derive more from their learning experiences when they have an active part in the total procedure of the instructional situation and assume responsibility for learning. Patton found, for example, that where students assumed responsibility for classroom experience (reading to be done, class procedure, written work, and method of grading), as compared with a control group, they felt that the course was more valuable and they showed greater interest in the course content. Moreover, the degree to which the student accepted responsibility was positively correlated with gain in knowledge of the subject matter and gain in ability to apply the principles studied.

Such findings, coupled with the research on group discussion as an effective instructional method and the group dynamics research on the productivity and behavior change in participative groups, have served to stimulate the interest of this writer in the possible applications of these principles to college-level learning. Because of the paucity of published reports of experimentation and innovation along these lines, this report will deal primarily with the experimental work of the author and secondarily with one other study which has appeared in the literature.[4] To provide framework for what is to follow, it might be well to mention the particular interests of the author which lead to study in this area. Of special interest have been such variables in learning as the degree of student interaction in study and learning, the extent of student-teacher contact, and the personality of the learner as related to his performance in various types of learning situations. By performance is meant not merely achievement in the course as measured on the class tests but total performance including other desirable outcomes of a learning experience, such as outside material read in conjunction with the course, quantity and quality of study invested in the course, satisfaction gleaned from the

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[2] Tri-College Human Development Conference, Findlay College, Findlay, Ohio, October 18–19, 1963.

[3] Joseph A. Patton. "A Study of the Effects of Student Acceptance of Responsibility and Motivation on Course Behavior." Doctor's thesis. Ann Arbor, Michigan, 1955. Abstract: *Dissertation Abstracts* 15:637–38, No. 4, 1955.

[4] Following the preparation of this article, the author came across a report of the recent work of Dr. Clarence Leuba, Antioch College, *Improving College and University Teaching*, 1964, Vol. 12, No. 1. [See also *Student-Led Discussion Groups*, by Dr. Leuba, on pages 60–67 of this publication.]

learning experience, stimulation of critical thinking, and actuation of further learning by the current course of study.

Experimentation With the Instructorless or Self-Directed Student Group

Specific interest in the experimental use of an instructorless small study group sprang from the findings of a study at the University of Michigan in which the members of small independent study groups achieved highly on course examinations and in which the more sociable student showed higher achievement than the less sociable student.[5]

Two follow-up studies have been conducted at Whitworth College (Spokane, Washington) employing self-directed student groups in an undergraduate social psychology course. The data from the first experiment have been analyzed and the results of that study are presented here. The findings of the second study appear to be substantially the same.

In the first study all 51 students enrolled in this sophomore-junior level course were randomly divided into two groups. The experimental group was divided further, at random, into small groups of five who attended no scheduled class meetings throughout the semester but met at least once a week in their small groups to study and discuss course materials. Individual post-meeting reaction reports, submitted after each meeting, provided a running account of the reactions of experimental group members and permitted a continuous check on attendance at the small group meetings. These students met with the instructor of the course on a voluntary basis once every three weeks to discuss course materials or any problems related to the course. The control group met in conventional lecture-discussion classroom manner three times weekly, considering the same material covered by the experimental group as outlined in the course syllabus. Periodic written assignments were required of both groups and both took pre- and post-course tests of achievement.

Achievement of the two groups was studied, as were several "other outcomes" of the total learning experience. Analysis of the relationship between the personality variable, sociability, and performance in the two learning situations showed that the more sociable person performed better in the interactive small group,

[5] Leslie R. Beach, "Sociability and Academic Achievement in Various Types of Learning Situations," *Journal of Educational Psychology*, Vol. 51, No. 4, p. 208-212.

but differences found did not reach a level of statistical significance.

As had been hypothesized, no significant difference in achievement was found between the groups. The experimental group (small self-directed study groups) averaged slightly higher in achievement than the control (classroom) group.

Analyses of the findings on "other desirable outcomes" of the course experience showed that the experimental group out-performed the classroom group at several points. Significant differences favoring the experimental group appeared in quantity and quality of study for the course [$t = 1.64$, $p < .05$ (one-tailed)], amount of reading done in conjunction with the course—both required ($t = 2.21$, $p < .05$) and nonrequired ($t = 3.18$, $p < .01$) —and works consulted in writing papers for the course [$t = 1.98$, $p < .05$ (one-tailed)]. Differences in ratings on the value of the course and in amount of "general reading" done related to subjects included in this course favored the experimental group, but these differences did not reach the .05 level of confidence.

All the small groups met more than the required once a week; and experimental group members indicated that they would study more, do more outside reading, and do more thorough outlining and systematic coverage of the materials if they had it to do over. While these experimental group members were not uniformly enthusiastic about the self-directed study experience, in giving their general reaction to the experience, 14 of the 25 checked "very favorable" or "favorable" and only 5 checked "somewhat unfavorable" or "very unfavorable." Whereas, at the beginning of the experiment only 8 of the 25 checked a preference for the instructorless small group experience over the classroom experience, at the end of the course 14 of the 25 indicated a preference for the small-group learning experience.

Student reactions to this novel experience in self-directed group study varied. The following are typical responses to the question: "What is your *general reaction* to your experience in this course?"

> I guess I enjoyed the attention I received from being a minority—but I feel that I did receive almost as much from my group as I would have from class. I enjoyed the idea of not meeting as a "classroom group."
>
> * * *
>
> Enjoyed the independence this group has offered and feel a little privileged in being in such an experiment. Just being in this study has increased my interest in research material. My reaction would have been more favorable had I had more experience with this type of study.
>
> * * *
>
> I am an adventurous soul and enjoyed the new experience; however, I feel concrete learning would have been better under a classroom situa-

tion or under the direction of one knowing more of the background, purposes, etc., of social psychology.

* * *

Discussions were interesting in terms of personal experiences and feelings on many topics. As far as book content and importance, often felt we weren't sure of covering important parts; however, we seemed to have hit them as far as final questions indicated.

In an attempt to find more specifically just what in the experience appealed to the students in the experimental group, the following question was asked: "What did you like *most* about this kind of learning situation and experience?" Some responses were as follows:

A much more relaxed experience. Very informal talk-it-over sessions. Got to know individuals personally. Heard more personal experiences.

* * *

The freedom and responsibility of being more on my own.

* * *

I learned to study and reason things out better for myself without waiting for an instructor's answer. I thought this was good as this way you don't rely on the instructor.

* * *

Independence. If we are to act as adults we should be treated as such and this type of learning experience "seems adult."

* * *

I like to work in small groups rather than large. I enjoy working with a minimum of authoritative direction. I desire to work at "my own speed."

* * *

The informality of our discussions, I felt, let us deal with any aspect of a topic that was bothering us, whereas we might be reluctant to mention it in a more formal setting.

Rounding out the picture of student reaction to the experimental treatment, the following are representative responses to the question: "What did you like *least* about this kind of learning situation and experience?"

Hard to begin. Very difficult to decipher what was relevant and what was not. Book hard to understand. Unable to ask questions of someone who could answer them.

* * *

I had to discipline myself more. This was probably good for me, but I would rather receive more outside motivation. Aside from my dislike of it, I think it was good for me.

* * *

I felt lost . . . as I'm not used to this even after 4 years of college. Grades count too heavily in the schools.

* * *

Probably the lack of definite direction that tended to leave us unsure of our standing in acquiring the material expected and our grade standing.

These latter responses are what might be predicted as response to this type of unstructured college learning experience, but evidently some felt that even those aspects of the experience which they did not like might have been of some benefit to them. It should be pointed out that the textbook used in this course was one which may have been too difficult for the level of the course. It presented a great deal of material on recent social psychological research and did not have the continuity or "flow" which might have been more suitable in a text for students at this level. Probably special care should be exercised in selecting a textbook to be used in this type of independent study situation.

The significant point of these findings appears to be the fact that the students in the experimental self-directed study groups did not suffer in course content learning from being deprived of the classroom and placed in the interactive, instructorless learning setting. Furthermore, they appear to have profited more in terms of "other desired outcomes" in the course when compared with the classroom group. It is also quite evident that the self-directed student group proved to be a feasible approach to college learning in this course and a method vastly more efficient than conventional classroom procedure in terms of college facilities and instructor time.

Similar results to those found by the author appeared in an experiment reported by Hovey, Gruber, and Terrell.[6] In an educational psychology class at the University of Colorado these investigators matched a self-directed study group with a lecture group in aptitude. Then the self-directed group was broken into small groups of 5 or 6 students who met in the small groups 2 days a week and with the instructor 1 day a week. The meeting with the instructor was concerned with problems in group functioning and questions on course content.

In this study the self-directed study group was slightly but insignificantly superior to the lecture group in achievement on the final exam and on final course grades. A similar pattern was found on a retention test administered 10 months later. The self-directed study group did a significantly greater amount of "serious reading" to increase their knowledge following the course experience. They suffered no loss in retention, compared with a control lecture group, and also showed small but persistent superiority on indices of curiosity. The practical significance of this last finding is described by Gruber and Weitman as follows:

[6] D. E. Hovey, H. E. Gruber, and G. Terrell. "Effects of Self-Directed Study on Course Achievement, Retention and Curiosity." *Journal of Educational Research*, Vol. 56, No. 7 (March 1963), p. 346–351.

> Surely a major goal of education is to stimulate the student to further pursuit of knowledge on his own initiative, after the compulsions of the classroom are far behind. Curiosity may be said to have a "gatekeeper" function in the educational system: if the system arouses further exploratory or reorganizing behaviors, it may set off a process which is self-sustaining and which may in large part determine the whole character and direction of the individual's future life.[7]

These investigators concluded that placing a major responsibility on the student for his own education has interesting possibilities for developing attitudes toward learning resulting in the student's continuing search for knowledge after the formal classroom experience is over.

Concluding Observations and Implications for Future Study

The studies of the author and of the University of Colorado group seem to indicate clearly that self-directed small group study does not result in any decrement in subject-matter mastery in the college learning experience. However, a number of measureable benefits appear in terms of other desirable outcomes of the overall course experience. Such educational resultants as interest in reading materials related to the course and its assignments, quantity and quality of study invested in the course, sense of independence and responsibility in one's own growth and learning, and lasting curiosity aroused by the learning experience: all appear persistently in favor of the self-directed student groups.

In conclusion it must be emphasized that the theory underlying the use of small self-directed study groups is sound:

- There is active participation and involvement on the part of the learner (active examination of subject matter rather than "passive absorption").
- Learning is based on self-discovery and self-directed inquiry.
- The meaning, the application, and the use of principles and concepts studied are better explored and shared by the learners.
- Learning becomes related to group members' experience and observations.
- Learning and application is at the level of each individual learner, yet there is freedom for individual exploration and enrichment.

[7] Howard E. Gruber and Morris Weitman. "Self-Directed Study: Experiments in Higher Education." (University of Colorado Behavior Research Laboratory Report No. 19), April 1962, p. 3-3.

- There is greater variety of interpretation of material studied and broader illustration of its relation to life situations.
- Interaction provides opportunity for students to learn from each other.
- Learning progresses, in an overall sense, at the pace desired by the small group.

In a learning situation where the above conditions exist, it might be hypothesized that certain desired educational outcomes can be expected: (1) meaningful generalization and transfer of learning, (2) improvement in the application and use of material learned, (3) increased curiosity and skill in critical thinking, (4) deeper understandings of material explored (while gains in knowledge are as great as or greater than those achieved by other methods), (5) better attitudes toward subject matter and continuing interest therein, and (6) greater satisfaction with the total learning experience. Some of these outcomes have, indeed, been observed in the limited study given to small group learning to date. Some are yet to be investigated.

A rather shocking fact is that some of these are the outcomes which many in higher education claim to be striving for (and even may claim to be achieving) but are not measuring. One of the important results of this kind of research and experimentation will be attempts to measure more systematically the "other educational outcomes" for which we are striving besides mere achievement in subject content. There is also a great deal of room for the further study of personality variables as they relate to student performance and learning in various learning situations.

STUDENT-LED DISCUSSION GROUPS

Clarence Leuba*

FOR MANY YEARS, Antioch College has sought to discover ways by which it might further the student's ability to learn on his own. It has tried to develop student independence in learning in several ways: through seminars and tutorial-type teaching relationships; through off-campus independent study programs, under which students in consultation with their advisers develop their own course syllabi; through a system of allowing course credits by examination; and through adoption of individual and group independent study procedures as a part of a teacher's regular teaching methods. The results of a series of controlled studies comparing independent study and regular lecture-discussion procedures in teaching are described in *Antioch College Reports*, Number 2. Report Number 5 discusses the use of group procedures in independent study as a major instructional device in helping students achieve responsibility for their own education. This article further describes the rationale for student-led discussion groups, based on the procedures followed in a general education course, Introductory Psychology.

The Instructor's New Role

With the wealth of books, articles, films, tapes, and other sources of information now available, it seems to me that the *main* function of the college professor, as teacher, becomes not one of dispensing knowledge in the classroom but one of motivating, encouraging, and helping the student to make effective use of this cornucopia of knowledge. His most challenging responsibility is that of helping the student learn how to learn. Becoming efficient in the process of learning on one's own is at the heart of the educational process.

The instructor's *main* function does not seem any longer to be that of imparting his knowledge to students by lecturing to them; and I am skeptical about the legitimacy of seeking through "in-

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spirational lectures" to inject students with an instructor's particular enthusiasms. Other sources of motivation, closer to the student's own needs as an individual in his own right, now seem to be at hand.[1]

I would suggest that an instructor's main responsibilities might be (1) to present, as in a syllabus, the resources (books, journals, films, recordings, projects) helpful for an understanding of the objectives, methods, and subject matter of an area; and (2) to provide circumstances that will produce interest and skill in learning, both as an individual and as a member of a team of learners. Most students need the experience of attempting to explain their ideas to others and of getting comments from others. In this way they discover the gaps or other inadequacies in their knowledge. It is well known that having to explain one's views to others can serve a uniquely important function in learning.

Furthermore, when students are making educationally valuable responses—as when developing and expressing significant ideas—they should get reasonably prompt reinforcing feedback. On the other hand, when they have strayed off-course, they should experience the inhibiting effects of adversely critical or other unpleasant feedback. They may be subjected to this during discussions with their peers. It is essential, too, that they be subjected at times to quick reactions from the instructor. Most students have much to gain from the stimulation, guidance, and feedback provided by interaction both with their peers and with the instructor.

Some Prerequisites for Successful Student-Led Groups

The educational value of discussion is generally recognized. However, it is my impression that generally the section meetings into which it has become customary to divide large lecture classes for eliciting student discussions have been disappointing, at least from the standpoint of eliciting discussion. They have been too large, too short, too infrequent, and too instructor-dominated.

To provide profitable discussion, student-led groups should be small enough to give ample opportunity for participation, yet large enough to provide a variety of backgrounds, interests, and points of view. Such groups, with possibly six to eight members, can meet twice weekly for 1½-hour sessions.

There are, of course, dangers in small, student-led discussion groups. Students can fail to prepare themselves, to formulate

[1] I am *not* suggesting that college teachers stop all lecturing, but that lecturing is no longer our main function or even a very significant one.

suitable topics for discussion, or to proceed in an orderly, systematic fashion. Their meetings can degenerate into desultory, meandering conversations. Some members may withdraw into disgusted silence while others elaborate from personal experiences and parade knowledge of irrelevant matters. Anyone who has participated in committee meetings knows only too well what can happen! Nevertheless, the serious discussion of a topic can be very helpful for gaining a balanced, comprehensive understanding of the topic.

The following prerequisities for profitable student-led discussions have become apparent to me after several years' experience with such groups in general psychology:

(1) Students have to be *motivated* to prepare themselves thoroughly and regularly by a study of the pertinent background from books and other sources provided by the instructor.

(2) The topics for discussion have to be both pertinent to the course and to the preparation that has been done; but they should also be of the students' own choosing and presented in such a manner as to elicit discussion.

(3) The student-discussion group leader has to be acceptable to the group—preferably chosen democratically by the group—and must receive training for his job.

(4) The course instructor has to persuade the students of the value of discussion, even though labeled by some as a "rehash" of the material they have read.

(5) The instructor needs to provide a manual on effective small group functioning and, possibly, give a demonstration of such functioning before the class.

(6) The instructor must keep in close touch with each discussion group (possibly through a brief written report from each group secretary after each meeting), and he must be readily available to any group requiring his help regarding either matters of content or of effective procedure.

All this requires effort on the part of both the instructor and the student. At times students may look back nostalgically just to "soaking up" information from books or lectures. It is true that they are usually eager at first to accept more self-expression, self-direction, and independence, and to accept more responsibility for their own education. But as they discover the work and effort required, they are likely to falter. Some may demand that the in-

structor do what he is presumably paid for, namely, to tell the students in lectures what they are supposed to learn. It is at this point that the instructor has to indicate in detail what is implied by the truism "all education is really self-education." He has to change the average student's conception of how an education is gained and of the possible role of the college instructor in the educational process.

The Problem of Adequate Motivation

Small student-led discussion meetings are valuable only when students prepare themselves carefully and then conduct discussions in a mature, systematic fashion. Something can be accomplished motivationally, of course, by choosing sources of knowledge that are well and interestingly written; but this is not enough.

I turned to the motivations generally known to be present in students—desires to be well liked and popular among their associates, to gain attention, and to win approval and possibly leadership, prestige, and status among peers. Many students also want parental, instructor, and other adult approval for good grades. My problem was how to connect at least some of these motives with a thorough-going preparation for group meetings, in the hope that eventually through this association the tenuous desire for knowledge might become an objective in its own right. If there could be "ego involvement" with the subject matter, the motivational problem might be solved. Therefore, group members were asked periodically to evaluate each other confidentially on the basis both of knowledge shown and of contributions to effective group functioning. These student evaluations were used at the end of the course—together with examinations and projects —to determine the student's grade.

As soon as the students realized that their status *among themselves*—as well as with the instructor—would depend upon their contributions to an understanding of the topics under discussion in their group, the quality and number of such contributions increased.

As students worked together week after week, another motive became apparent: group identification and consequent group pride and loyalty. Students became interested in comparing the performance of their team in discussion with that of other teams. I tried to nurture these motives and to harness them to the task of furthering course objectives.

As most students became increasingly involved in assuming responsibility for their own education, and to some extent for that of their fellow team members, improvement in examination grades became noticeable in spite of a lesser emphasis on grades. Using substantially the same examinations and norms as previously, the number of F's and D's decreased from approximate equality with A's and B's to only a little over half the latter. Further improvement should be possible.

Helping Students to Function Effectively in Groups

Motivation for thorough, regular preparation was the main problem but not the only one. Even well-motivated and well-informed students may not participate in discussions effectively because they lack skill in effective interaction. They may have been accustomed chiefly to recitation, or to question-and-answer periods, or to "bull sessions." Effective development of a topic through discussion is a slowly acquired art. In a "Manual for Student-Led Groups," I suggested the following procedures: listen carefully, restate in your own words what had been said, raise questions when a point was not clearly stated, make thinking more precise through careful definitions of terms and through illustrations, seek implications and applications, see a topic from as many angles as possible, question the reliability of sources of information, summarize periodically, and draw out quiet people. I was amazed at how many students still had to learn such elementary procedures as not to interrupt or not to speak when others were speaking. I was also surprised to discover how difficult it was for the students to determine when diversions from the topic should be discouraged or should be briefly explored as having possible significance. Too rigid control of a discussion could be frustrating and as detrimental as no control.

To secure the adoption of the procedures mentioned in the manual, it sometimes became necessary to offer training periods. This training often included having group members re-state the previous speaker's views and inquire whether the speaker had anything further to add before they stated their own ideas.

I met occasionally with the group leaders to emphasize the functions for which they were responsible and to discuss with them the problems they had encountered. Although they were responsible for the use of effective procedures, it was emphasized that their ultimate objective was to distribute this responsibility as much as possible among the members of the group.

I found that the instructor should furnish suggested discussion

questions for the first few meetings. Furnishing such questions should soon become the students' responsibility. If, however, this responsibility is left equally to all members of the group, each is likely to leave it to the others. Accordingly, in a group of six to eight students, it is wise to have a rotating steering committee of two or three members responsible for discussion topics. Other members may also bring in questions for discussion. The leader's responsibility is then to bring out quickly these topics and questions at the beginning of each meeting and to get group consensus —or at least a group majority—regarding the topics they would prefer to discuss. This is important since groups discuss much more effectively and enthusiastically the topics that they themselves have had a share in choosing.

The manual should indicate not only how to choose significant topics for discussion but also how they should be presented to arouse useful discussion. Merely stating a topic may not be enough. It may be too vague and general to start any discussion. Or, if a discussion does get started, it may go off in many unrelated directions. The questioner should indicate what is already known about the topic from the reading and what specifically he wants to have discussed. Is it clarification of a particular point, disagreement with it, illustrations of it, its implications, its relation to other topics previously discussed?

Two-Way Communication

As the program progressed, it became possible to hold group meetings in a number of small rooms in the same building and to connect those rooms by means of a two-way communication system with a central office, in which I could remain during the meetings. Each of the small rooms was provided with table and chairs as in a typical seminar or conference room. By pressing a button, the students could "buzz" me. By flipping one switch, I could listen to a particular group; by flipping another, I could talk with them.

I soon got into the habit of tuning in briefly on each group, in succession, at the beginning of each class period, listening only long enough to make sure that a group was well started on some reasonably pertinent and useful discussion. In most groups, there was usually a brief friendly warm-up period. Then the leader would ordinarily get things started by calling on the steering committee for the discussion topics they had prepared or a member might indicate some point which he felt needed clarification.

For most of the period, I concentrated on one or two groups that I knew were having trouble developing useful discussions. I might occasionally make suggestions to them, or I might postpone the suggestions in order not to interrupt them. Later, I would drop the leader a note or arrange to see him. If there were a number of matters of general concern, I would arrange for a short meeting of all the team leaders.

Most enlightening to me were the insights I gained into how students learned. In spite of decades of college teaching, in which I had used mainly lectures and instructor-led discussions, I began to realize how little I knew about what and how students learned. I began to understand the laborious, time-consuming processes students had to go through before they could express well-defined and organized ideas in a way meaningful to them.

Although the two-way communication system proved to be helpful, it had one serious and unexpected deficiency. Without being able to see the group members and without knowing them, I was usually unable to identify them by their voices alone and could not get to know the students with the exception of the group leaders whom I met individually and in conferences. This was a serious drawback since I could not readily give individuals appropriate help and understanding or commendations and criticisms. Such immediate feedback seems to be essential for quick, effective learning. A television camera in each room and a screen in the central office might overcome this difficulty. The instructor could then see as well as hear a speaker. Or the central office could be at a hub from which small rooms radiate, with direct vision into each room through one-way vision screens. With such a physical set-up, it should be possible for an experienced instructor to handle a class of at least one hundred, divided into ten or more student-led teams.

How Well Do Students Learn by These Methods?

My interest so far in an overall evaluation of the educational progress made by these groups has been only to make sure that by conventional standards my students were doing at least as well as in conventional courses and that most of them believed that they were making a worthwhile use of their time. This I did by means of the usual examinations and by means of a questionnaire on which students evaluated anonymously the usefulness to them of their group discussions. As mentioned above, a large and increasing majority of the students (two-thirds to four-fifths)

felt that student-led discussions were worthwhile. Other evaluations were made of specific procedures to determine whether they helped attain objectives or whether they should be modified or even abandoned in favor of possibly better ones. In making these evaluations, I used student opinions, as well as my own, and those of other available observers. The time is fast approaching, however, when an overall evaluation should be made of student-led discussion groups.

This process of education through group discussions needs scientific study. We have begun by making tape recordings, sampling group sessions at the beginning, middle, and end of a course. These will be examined to see how progress occurs—what helps and what seems to hinder. This evaluation should reveal not only necessary attitudes and skills, but also the concepts which are particularly difficult to comprehend because of complexity, vagueness of terminology, or other reasons. It may be necessary to prepare additional reading material that develops ideas by small logical steps, testing for comprehension of each step before proceeding to the next one—somewhat similar to a programed instruction technique.

Important Considerations in Conducting Student-Led Groups

Adequate physical facilities, providing two-way audio-visual communication between the instructor and the student-led groups in properly furnished, small rooms, contribute greatly to the success of discussions in these groups; they may well be essential. In addition, it cannot be over-emphasized that the success of such groups depends on a willingness to make detailed preparations and to help in the development of the necessary student attitudes, motivations, and skills. Finally, the ultimate objective of the program described is the development of the attitudes and skills which would enable students eventually to function more completely on their own in student-led discussion groups, with a minimum of instructor supervision, or possibly with no instructor supervision.

INTRODUCTORY SEMINAR IN AMERICAN GOVERNMENT

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AT MOUNT HOLYOKE, independent study is investigation or work conducted by the student substantially on her own. It ranges from the writing of a research paper for an extra hour of credit in the freshman year to the sophisticated senior honors research project, creative or critical writing. It may be anything from a special reading project concentrating on a particular aspect of a discipline to the writing of a play.

Independent study is gauged by the procedure the student follows, and the independence is a matter of degree rather than a set of absolutes. The procedure requires that a faculty member serve as initial sponsor to launch the project with the student, and that someone—a faculty member of Mount Holyoke or another institution—judge the results. The final judgment must be based on evidence which can be evaluated—a paper, a painting, an oral report, or a written examination. What happens between the start and the conclusion may vary a great deal as for example in the degree of interdependency between the student and the instructor.

Two types of interdependency will serve to illustrate these procedures. In the first, a student who has much competence in a discipline may on her own volition choose the topic for research and a paper as well as the program for completing it. No formal class sessions are involved; the role of the instructor is to serve as guide and critic. In the sciences the amount of supervision often depends on the technical difficulty of the experiment. Where techniques are difficult the student may require considerable help at the outset, and as she acquires techniques, she can continue on her own. But even here she is allowed latitude in seeking out scientific journals for background reading.

In the second type a subject is predetermined by the instructor for a small group of students each of whom develops an individual paper, and all papers contribute to the overall subject. The group

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meets from time to time in seminar sessions, but the student carries on outside the meetings independently. The instructor again serves as consultant on bibliography and the feasibility of the research and judges the paper or report ultimately presented to the group. This second type of independent study is illustrated by the special introductory seminar in American government.

Objectives of the Introductory Seminar in American Government

The introductory seminar in American Government was offered as an experiment of the four colleges in the Connecticut Valley (Amherst, Mount Holyoke, Smith, University of Massachusetts).[1] The proposal came from a small committee of faculty and administrators who "were asked to re-think the assumptions underlying education in the liberal arts and to re-evaluate accepted practices and techniques. . . ." Instead of a curriculum comprised of freshman survey courses followed by advanced seminars, the committee suggested the reverse—large advanced lecture courses (with discussion groups conducted by the student members) and small "freshman seminars" (of no more than 10 or 15 students) designed to initiate the student into self-education. It was assumed that the student "is capable of far more independence than he now demonstrates, but that he must be given proper training and opportunities." Such a freshman seminar would explore a limited subject, the objective being to show students what it means to work as a scholar in a discipline. A seminar of this kind would be a "methods" course to include the "how to" work up a field, define problems and issues, assemble data, formulate hypotheses, and undertake analyses. While imparting some competence in a field the seminar would engage the student in learning independence. In such a procedural study, there could be no escape, one thinks, from learning subject matter in depth if one were to cope with methodology.

After the four colleges had agreed to undertake the experiment, the faculty members of the supervising committee each turned over to the appropriate committee of his own institution the task of fitting the new seminar into the specific college curriculum.

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[1] For more details on the proposal and the results see Barber, C. L., Donald Sheehan, Stuart M. Stoke, Shannon McCune. *The New College Plan, A Proposal for a Major Departure in Higher Education*, Amherst, 1958; Barber, C. L. *More Power to Them, A Report of Faculty and Student Experience in the Encouragement of Student Initiative*, Amherst, 1962. The project was assisted by a grant from the Fund for the Advancement of Education of the Ford Foundation.

Description of the Seminar

Although the original concept had been for a freshman seminar, the logistics involved in setting up the course within the Mount Holyoke context made it more adaptable as a sophomore offering. Fourteen sophomores and one freshman took the seminar. The students invited were selected from among the 80 or 90 who had elected the general American Government course and were chosen largely because their course schedules permitted a 2-hour group meeting once a week in the afternoon. The group was not extraordinary either as to college board scores or scholastic averages. For example, most of the students had C or B averages at the end of the freshman year. None had had any previous experience with independent study.

As to the time involved, the instructor taught two courses while directing the seminar. Because Mount Holyoke then had a five-course plan, students at least theoretically spent one-fifth of their time on the seminar (they reported having spent much more).

The course met once a week for two hours during the first half of the semester. These weekly meetings—and they were discussion sessions only—were adjourned during the time that students were writing their final papers except for an hour at mid-point when they came together briefly to compare the problems they were encountering in the research and writing. In the end, there was a final meeting of more than two hours to discuss the papers and to formulate a conclusion on the topic of the seminar to which each paper contributed a single aspect.

The subject of the seminar was the relationship between the President and the Congress, but to give a sharper focus the specific topic was President Eisenhower and the first session of the 86th Congress. This session was selected because it had adjourned only a couple of weeks before the start of the course, and committee hearings, reports, the *Congressional Records* for the session, copies of bills, and White House press releases were available in the library.

The syllabus was designed to present the subject and purposes of the seminar. It listed the principal legislative items of the 86th Congress, 1st Session, and referred to some of the major issues. It also contained a selected bibliography with a wide variety of writings on the presidency and Congress—classics, monographs, newspapers, periodicals, and source materials, as well as some books on writing and style.

About a fourth of the course at the start was spent in discussion of general theory, institutions, and processes of the execu-

tive and lawmakers. Students even read a number of Supreme Court cases on executive and congressional power. The remainder of the time was devoted to study in depth of President Eisenhower and the Congress with many questions in the forefront: for example, What is politics? Where is the locus of power? What is the process of decision-making? What limitations are placed on the exercise of power?

The first and only definite assignment of reading was Drury's fairly recent novel, *Advise and Consent*, ten numbers of the *Federalist Papers*, and selected articles of the federal constitution. After that, assignments were based on subjects to be discussed, questions to be answered, and data to be furnished for proof.

There were no examinations. Students wrote five papers and submitted one "set" of research notes on cards. The first paper was a comparison of the novelist's view of the presidency with that of the authors of the *Federalist Papers*. The next three were brief essays utilizing source materials on elections (1956 and 1958) and the fight over Rule 22 (cloture). They were to serve as preparation for the final and long paper analyzing presidential-congressional strategies in passing or blocking legislation. For the final paper each student chose a particular bill or appointment of President Eisenhower—anything from the farm bill and Hawaiian statehood to labor measures or the Strauss nomination.

The instructor advised students individually on note-taking and research methods, and wrote extensive comments on all papers. The first drafts of the final papers were read and returned to the students for rewriting. All this meant a considerable investment of faculty time.

No special arrangements for this course were made by the college library. No reserve books were set aside in the reading room as is customary in other courses. Yet these students made more extensive and profitable use of the library resources than they had ever made in any other course. They found their way to all kinds of collections in the library stacks and inhabited the document and newspaper floors, usually the rather exclusive domain of upperclassmen.

Evaluation

At the start students were bewildered by the absence of specific reading assignments and frustrated with the length of the bibliography in the syllabus. But in the end they thought the list too limited. It was striking to see how they had gained genuine in-

dependence, how they took no writer's conclusions for granted, and how they established the habit of evaluating sources. Dependence yielded to independence; typical question-and-answer classes became lively and close discussions; time proved insufficient to cover desired argumentation.

Students, the faculty member, and the four-college committee participated in evaluating the seminar and concluded that it had been successful in realizing its objectives. Finally, instructors in the experimental introductory and advanced courses in the four colleges met to discuss the total results and check experiences. It should be noted that no attempt at comparisons with a control group were made since no other class had been taught comparably.

Each student wrote a personal statement (signed or unsigned as she wished), and then the seminar met without the instructor to discuss the procedures. A committee of students prepared a composite evaluation. Without exception they admitted their early frustrations in the opening days and their subsequent genuine enthusiasm in discovering how self-reliant, disciplined, and independent they had become later—even how wistful they were at the thought of returning to traditional procedures.

There is another observation. The level of achievement of the students in the seminar was amazing: no student fell below a B in the course; several achieved B+ and two made A—. Most of them majored in political science; several concentrated in economics or history. In graduate school, one has been elected first woman editor of the law review in the law school she is attending.

Although this experimental course was not continued, a number of its features have become a part of a new introductory course in American Government at Mount Holyoke.

Observations Arising From the Seminar

No course in teaching independence can rely on methodology alone. The character of the limited subject is important; if the topic is intellectually stimulating, almost any amount of tedium will not defeat its purposes. Before a student can undertake independent study without squandering time, he should have some acquaintance with the field in which he is working. Subject matter can be learned in such a seminar. But there is need for time to undo the habit of dependence on the instructor for specific readings. In the case of the special seminar, the instructor could have prevented some of the frustrations by offering more guid-

ance. There is also need for time to write and rewrite, for time to probe into the corners of the subject. All of this adds up to the suggestion that such a freshman seminar would be best offered as a part of the three-course plan or at most a four-course plan.

A group of 12 students would be more desirable; it should never exceed 15. Students need not be scholastically superior. No doubt like the Hawthorne experiment some of the success of this seminar was its uniqueness, but such a course if offered regularly could spark many students to a level of intellectual achievement they had not attained before. And a curriculum with such seminars would offer a break from the typical prep school class procedures too often carried over into college courses.

General Observations

From this course one may conclude that the sooner a student is introduced to independent work the better. He should learn early how to go about it and how to avoid a fearful waste of time. Freshmen can begin independent work in close relationship to a course, as experience at Mount Holyoke noted before suggests. Students with initiative and interest will benefit most. But the experiment with the special seminar would seem to point out that initiative and interest can be aroused by this type of teaching. It cannot be gainsaid that the initial demand on faculty time is heavy, but as work progresses with the same students this demand levels off. In the end both students and faculty become the gainers.

It was agreed at the start that the experiment would be tried for a single year. The announcement of a gift for the new Hampshire College in Amherst, to be sponsored by the four colleges, opens the way for further experimentation in this type of seminar.

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